FLORISTIC RELATIONSHIPS OF NEW CALEDONIAN RAINFOREST PHANEROGAMS

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ABSTRACT

Morat, Ph.[1], Veillon, J.-M.[1] & MacKee, H. S.[2] ([1]Centre ORSTOM, B.P. A5 Cedex, Nouméa, New Caledonia; [2]B.P. 3369, Nouméa, New Caledonia) 1986. Floristic relationships of New Caledonian rainforest phanerogams. Telopea 2(6): 631–679 — A detailed analysis of the New Caledonian rainforest flora is given; 1499 species in 365 genera and 108 families are listed. Distribution of the species within New Caledonia is given in terms of specificity to rainforest (forest/non-forest and forest occurrence) and to substrate (only ultrabasic/absent from ultrabasic/present on ultrabasic and other substrates). Distribution of genera is presented according to occurrences in 12 phytogeographic units from endemic to pantropical. Sources of information are given. Comparisons with the whole New Caledonian phanerogamic flora are made; 46% of genera and species and 66% of families occur in the rainforest. For the flora the level of specific endemism is c. 75%. Floristic affinities are assessed by: comparison of numbers of genera shared with other regions (pantropical genera included/excluded); and numbers of genera shared exclusively by New Caledonia and 2, 3, 4, 5 or 6 other regions. In these comparisons Australia, New Guinea, Malesia, Fiji, the New Hebrides, the Solomon Islands and then New Zealand have the most genera in common with New Caledonia. A floristic affinity co-efficient for each territory was calculated from the proportion of the number of common genera to the number of territories in which they occur, for groups of two to six territories. From these data, the calculated floristic affinities are Australia — 27%, New Guinea — 20%, Malesia — 12%, Fiji — 10%, New Hebrides — 7.5%, Solomons — 7% and New Zealand — 3%. Origins of the New Caledonian flora are discussed in relation to the geological history; continental isolation since the Permian, proximity of north-eastern Australia and New Guinea until the lower Cretaceous, and early Tertiary formation of widespread peridotites are major factors in the development of this flora. Comparisons of edaphic preferences show that c. 30% of species occur only on ultrabasic substrates, c. 40% are restricted to other substrates, and c. 30% occur on both sets of substrates. Of the exclusively forest species, c. 500 are restricted to substrates other than ultrabasics, and c. 300 to ultrabasics. Groupings of families according to substrates are also given. The authors question the positive influence of the ultrabasic substrates on the floristic richness and on the conservation of archaic ancestral components of the flora.

INTRODUCTION

New Caledonia has long attracted phytogeographical analysis (Balansa 1873, Brongniart 1874, Fournier 1874, Brousmiche 1884, Bernard 1895, Guillaumin 1921, 1924, 1928, 1934, 1954, 1964a, Virot 1956, Baumann-Bodenheim 1956, Thorne 1965, 1969, van Balgooy 1960, 1971). Early botanists working on the flora were quick to recognize its originality. When it became better known, together with other Pacific floras, the high proportion of endemics was emphasized both at specific (76% for Guillaumin 1921; 90% for Baumann-Bodenheim 1956, Guillaumin 1964a) and at generic level (1% for Brongniart 1874, 13.5% for Thorne 1969, 16% for van Balgooy 1960). Floristic links were demonstrated, mainly with Australia and New Guinea (Thorne 1965, van Balgooy 1960, 1971). The presence of numerous archaic forms (gymnosperms and primitive angiosperms) led authors concerned with Pacific phytogeography to recognize the individuality of the island, defined as a 'Région canaque' (Guillaumin 1928, 1934), 'New Caledonian Region' (Good 1964, van Balgooy 1960, 1971), 'Sub-region' (Thorne 1963), 'Sub-kingdom' (Takhtajan 1969).

The time has come to reconsider the biogeographic relationships of the Territory. The most recent publications (Thorne 1965, van Balgooy 1971) are in fact based on distinctly earlier data (Guillaumin 1948, Baumann-Bodenheim 1956). Later botanical advances in New Caledonia and in the Pacific generally justify a new approach, which is the first aim of the present article. Attention is here focussed on the rainforest, a choice that greatly reduces uncertainties in distinguishing native species from those of relatively recent introduction. The rainforest has, for our purposes, the clear advantage that for obvious climatic and palaeoclimatic reasons, relict forms are better conserved in it than elsewhere. Unless seriously disturbed it resists invasion by outside elements, real floristic affinities being thus more evident. Such forests exist in New Caledonia on a wide range of substrates — limestone, basalt, schist, greywacke, clays and also the ultrabasic rocks (peridotites and serpentinites), which produce exceptional edaphic conditions affecting the whole mineral nutrition of plants (excess of Mg and the heavy metals Ni, Cr, Mn; deficiency of P and K). These special conditions are often invoked (Virot 1956, Thorne 1965, Jaffré 1980) to explain the abundance and persistence of primitive relict forms. The second aim of this study is to check this hypothesis by a quantitative analysis of the species according to their habitats.

METHODS

All available data have been reconsidered in listing as completely as possible all species recorded for the Territory. Doubtful taxa have been eliminated, as well as introduced plants, as we deal only with the native phanerogamic flora.

The rainforest

We deal with the rainforest as defined and mapped in the 'Atlas de la Nouvelle-Calédonie' (Morat et al. 1981), thus covering the following formations in their essentially intact state: dense evergreen forest of low and medium altitudes; dense mountain forest; the edaphic variant represented by evergreen forest on limestone. All other forest or similar formations are excluded — sclerophyll forest, swamp forest, mangrove, tall shrubland, gallery forest, etc. The rainforest covers 300000 ha on the main island plus 100000 ha in the Loyalties and the Isle of Pines, equivalent to 22% of the total surface of the Territory of New Caledonia (Fig.1).

Species of the rainforest

All plants are included whose occurrence in undisturbed rainforest is constant and unequivocal, regardless of their abundance, their bulk, their association with any particular stratum or biological type or their possible presence in other formations. The stipulation of undisturbed forest excludes all 'secondary' species which, colonizing forest edges or openings where a large tree has fallen, penetrate accidentally and temporarily into the forest, unless they exist, even rarely, within the intact formation. *Rubus moluccanus*, for example, a species very probably native, but known in forest only in disturbed and open situations, is omitted. A few heliophilic species are, however, included, e.g. *Duboisia myoporoides*, a shrub or small tree appearing abundantly whenever an opening (track or clearing) is made, but definitely known, though rare, in normal rainforest. Other species characteristic of adjacent stations, such as coastal scrub or gallery forest, occur exceptionally in rainforest. Their presence, due to an accidental introduction or to a transitory situation (edge of a rapidly advancing

Figure 1. Rainforest in New Caledonia.

rainforest), is only sporadic. Such species are excluded, e.g. *Eriaxis rigida* (Orchidaceae), *Gahnia neocaledonica* (Cyperaceae), *Joinvillea* spp. (Flagellariaceae), *Allophylus cobbe* (Sapindaceae), *Malaisia tortuosa* (Moraceae), *Gouania leratii* (Rhamnaceae), *Lindenia vitiensis* (Rubiaceae), *Heliconia* sp. (Musaceae), etc.

Precise delimitation of the rainforest is often difficult, and where it passes progressively into tall shrubland, gallery forest or secondary forest, becomes essentially subjective. Each doubtful taxon has therefore been considered individually and those retained which best meet the chosen criteria in the light of existing literature, notes on herbarium sheets and, above all, our own observations and reflections.

Rainforest species are listed in Appendix 1. **Forest** species (F) are those found only in rainforest. Species found also in other formations are referred to as **mixed** (M). The following groups are defined to determine the effect of substrates on floristic diversity and on the level of endemism:

- species growing only on ultrabasic substrates (U)
- species absent from ultrabasic substrates (A)
- species growing on both types of substrate (I).

	U	A	I
F	FU	FA	FI
M	MU	MA	MI

Subspecies are not considered. If a species has subspecies of different edaphic status (U or A), the species as a whole is classed as I. The following categories thus exist among strictly forest species and those present also in one or more other formations.

The substrate has little if any influence on the distribution of epiphytes. Possible associations between epiphytes and their hosts are too little known to offer significant correlations with substrates. Parasitic Loranthaceae are, however, much more closely associated with their hosts, whose edaphic status they receive.

As with the data already considered, it is sometimes hard to assign a definite edaphic status to particular species. Some parts of the Territory still lack detailed geological maps, and even these cannot show all small-scale variations. Here also, published data and information on herbarium sheets, used critically and with caution, have been completed by our own observations. Doubtful species are left without edaphic status.

Genera and families of the rainforest

These are established using the lists of species occurring exclusively (F) or partially (M) in this formation. It may be noted that certain genera (*Acridocarpus, Erythroxylum, Grevillea, Isachne,* etc.) are excluded as having no forest species in New Caledonia although represented elsewhere in rainforest.

The genus is adopted as the working unit in phytogeographical analyses, for the reasons already cited by van Balgooy (1971) (more homogenous comparisons, relative numerical stability at different dates, definition generally sounder than that of species). In some cases, however, subgenera or sections are considered more significant than the genus itself in establishing floristic relationships: e.g. subgenus *Antholoma* rather than *Sloanea*; section *Scaevola* less its two pantropical species instead of the genus *Scaevola*. Certain genera whose limits seem ill-defined are considered together, e.g. *Caryophyllus* and *Jambosa* with *Syzygium*.

Rainforest genera are listed in Appendix 2. This list does not agree completely with the list of species (Appendix 1) because of nomenclatural complications arising when authors publish new genera or new synonymy without making, at specific level, all the new combinations that seem to be required: e.g. *Gymnostoma* (Casuarinaceae) for some species of *Casuarina* (Johnson 1980); *Eucarpha* and *Virotia* (Proteaceae) for some species of *Knightia* and *Macadamia* (Johnson & Briggs 1975); *Cassine* (Celastraceae) for *Elaeodendron* (Ding Hou 1962); *Anthocarapa* for *Amoora* (Pennington & Styles 1975); *Pisonia* (Nyctaginaceae) for *Calpidia* (Stemmerik 1964); *Lethedon* (Thymeleaceae) for *Microsemma* (Kostermans 1963), etc. Elsewhere, generic changes are only proposed by the specialists concerned, e.g. transfer to *Medicosma* of *Melicope* p.p. (Rutaceae) (T. G. Hartley pers. comm.) or revival of *Tristaniopsis*, a genus long reduced to synonymy under *Tristania* (Myrtaceae) (J. W. Dawson pers. comm.). In neither case is it for us to make the combinations instead of the authors proposing new generic limits. Such taxa appear, therefore, under their current binomials in the specific list and under the new generic name in the lists of geographical distribution. The quantitative results are not affected, being derived separately from each list.

SOURCES OF INFORMATION

These are too numerous to be cited completely; the most important have already been mentioned or appear in the references. For the nomenclatural status of taxa and for their distribution within New Caledonia in relation to edaphic factors, the sources are of three types: the existing literature; the herbarium of Centre ORSTOM (Nouméa); and naturally, personal observations.

The literature is considerable and scattered through many journals, floras, lists and compendia. We have first considered the most recent floras and revisions, in particular the *Flore de la Nouvelle-Calédonie et Dépendances* in which 16 families (four gymnosperm families, Sapotaceae, Proteaceae, Lauraceae, Epacridaceae, Orchidaceae, Solanaceae, Acanthaceae, Bignoniaceae, Symplocaceae, Flacourtiaceae, Icacinaceae and Corynocarpaceae) concerned in this work have appeared. There may be added seven families (Elaeocarpaceae, Apocynaceae, Trimeniaceae, Monimiaceae, Atherospermataceae, Chloranthaceae and Amborellaceae) in course of publication, the manuscripts or relevant information having been communicated to us. Numerous families represented in the rainforest have also been studied recently in whole or in part. These are Anacardiaceae (*Euroschinus*), Araliaceae (*Arthrophyllum*), Balanopaceae, Celastraceae (*Salaciopsis*), Chrysobalanaceae, Cunoniaceae (*Acsmithia*), Cyperaceae (*Baumea, Costularia, Gahnia*), Euphorbiaceae (*Austrobuxus, Baloghia, Bocquillonia*), Fagaceae, Loganiaceae (*Geniostoma*), Meliaceae, Mimosaceae (*Albizia, Pithecellobium, Serianthes*), Moraceae, Myrtaceae (Leptospermoideae), Oncothecaceae, Palmae, Pandanaceae, Pittosporaceae, Rutaceae, Rubiaceae (*Tarenna*) and Winteraceae. Recent reliable revisions cover about 65% of the flora here studied. For the rest we have used the results, modified where necessary, of the Mission Franco-Suisse (Guillaumin 1957, 1962, 1964b, 1967, 1974). Earlier sources include numerous and varied publications by Schlechter, E. G. Baker, S. Moore, Rendle, Aubréville, Virot, Thorne and others (see references). Obvious errors such as the superfluous generic name *Merismostigma* S. Moore, based on a species of *Coelospermum* Bl., have been corrected.

The local flora is well represented in the herbarium (40000 specimens) of Centre ORSTOM (Nouméa), another significant source of information, used critically, on the edaphic status of species. It is also distinctly useful in questions of nomenclature, thanks to many determinations by specialists of families not yet treated in *Flore de la Nouvelle-Calédonie*.

Geographical distributions outside New Caledonia are taken exclusively from the literature. The starting point was the remarkable work of van Balgooy (1971), modified and brought up to date in view of new data in later publications already cited and in recent volumes of *Flora Malesiana*, in *Pacific Plant Areas* and in the first volume of *Flora Vitiensis Nova*. Finally, the eighth edition of *A Dictionary of Flowering Plants and Ferns* (Willis 1973) and the *Dictionary of Australian Plant Genera* (Burbidge 1963) served to settle a few outstanding questions.

GEOGRAPHICAL DIVISIONS

The phytogeographical units of van Balgooy (1971) are modified as we are concerned with New Caledonia rather than the whole Pacific.

Africa — includes the whole continent, plus Madagascar, the Mascarene Islands and the Seychelles; the islands are distinguished by a number* if a New Caledonian genus is, in this subdivision, limited to one or more of them.

Asia — includes the whole continent (except the Malay peninsula), plus Japan.

Malesia — covers the geographical area of *Flora Malesiana* (including the Philippines), except New Guinea, the Bismarck Archipelago and the Aru islands.

*See Appendix 2

New Guinea — plus the Bismarck Archipelago and the Aru islands.

Australia — (including Tasmania).

Pacific

Solomon Islands, including Bougainville, which geographically belongs here.

New Hebrides, in the geographical sense, i.e. including the present Vanuatu and the Santa Cruz group.

Lord Howe Island.

Norfolk Island.

New Zealand and associated islands (Chathams, Kermadecs, Stewart).

Fiji.

North Pacific, an arbitrary unit grouping the following islands – Bonins, Carolines, Mariannes, Marshalls, Tuvalu, Phoenix, Tokelau, Hawaii.

Polynesia, includes French Polynesia plus the Cook Islands.

Samoa and **Tonga**, plus Niue, Wallis and Futuna.

America — the whole continent. North and South America are considered together as being little involved, apart from pantropical genera.

The Phoenix, Tokelau and Tuvalu Islands are associated with the North Pacific, on account of their geographical position and because all the relevant New Caledonian genera* that occur there are found also in the Carolines or the Mariannes.

DISTRIBUTIONS

The categories defined by van Balgooy (1971) and their content are also somewhat modified in the light of recent taxonomic studies and particularly because of the more limited scope of the present work.

Endemic genera (E), limited to New Caledonia, the Loyalties and the Isle of Pines.

New Caledonian (subendemic) genera (B), for which New Caledonia is a primary centre of diversification, having the great majority of the species (usually more than 3/4 of the total; e.g. *Meryta* 19/25, *Hedycarya* 9/12, *Coronanthera* 9/11, *Dizygotheca* 17/17, one species being also in the New Hebrides). For such genera New Caledonia usually has a central position (*Balanops, Baloghia, Meryta*), but is sometimes eccentric (*Coronanthera, Acianthus*) or even at the limit of their area (*Artia, Delarbrea*). Other genera for which New Caledonia is a secondary centre of distribution with many species are not, however, considered 'New Caledonian', either because their areas are too wide and scattered for it to be their centre of dispersion (*Araucaria* 13/19, *Soulamea* 7/14 (with one species in the Seychelles, one in Malesia and one in Polynesia), *Euroschinus* 4/6, *Agathis* 5/20, *Campynema* 1/2, *Arthrophyllum* 10/31, and also *Dianella, Geniostoma, Phyllanthus, Pittosporum*, etc.) or because their origin may well be elsewhere (*Argophyllum, Austrobuxus, Geissois*, etc.).

**Allophylus, Calophyllum, Calpidia, Epipremnum, Guettarda, Hemigraphis, Hernandia, Intsia, Macaranga, Morinda, Ochrosia, Pandanus, Planchonella.*

Pacific genera (L), found in one or more island groups in the Pacific but absent or rare in America, Asia, Australia, Malesia and New Guinea (e.g. *Cyphosperma, Earina*). This type of distribution is extended to the following genera: *Ascarina* with one species in Australia and Malesia and another (Jérémie 1980) in Madagascar; *Dracophyllum* (50 species, two of which occur in Tasmania and one in continental Australia); *Storckiella* (five species, one (B. P. Hyland pers. comm.) being Australian); *Astelia* (a few scattered species in Australia, New Guinea and South America); *Tapeinosperma* (39 species in New Caledonia, 11 in Fiji, two to three others in Australia, Malesia and New Guinea); *Scaevola* section *Scaevola* (less the two littoral species), extra-Australian but with two species in Malesia and New Guinea. More complex distributions are represented by *Serianthes* (four species in New Caledonia, five in other Pacific islands (Solomons, New Hebrides, Fiji, Polynesia), four others in New Guinea or Malesia), and *Austromyrtus* (nine Australian species and 28 others in the Pacific, including 12 in New Caledonia). Their inclusion in this group is justified by the weight of the Pacific species. Similarly, *Campynema* (one species endemic in New Caledonia, another endemic in Tasmania) is better placed here than among the Australian genera.

Subantarctic Pacific genera (J) with disjunct distributions in New Caledonia and in the mountains of Australia, New Zealand and South America. Few occur in New Caledonia, owing to its geographical position and the absence of high mountains. The best examples are *Araucaria* and *Nothofagus*, also *Decussocarpus, Dacrydium* and *Libocedrus* (three species in New Caledonia, two in New Guinea, two in New Zealand and one in the Andes).

Subantarctic genera (K) with distributions extending from the Pacific to the south of the Indian Ocean, such as *Cordyline, Dianella, Podocarpus*, the last being included here in spite of its vast distribution. *Soulamea* (one species in the Seychelles, one in Malesia and one in Polynesia, the other seven being New Caledonian) is placed in this group as is *Cunonia* whose extraordinary distribution includes 20 New Caledonian endemics and a single other species, *C. capensis*, in South Africa. They probably belong to an ancient Gondwanian element.

Australian genera (H) include those occurring mainly in Australia (e.g. *Hibbertia, Styphelia*) and even *Duboisia* and *Niemeyera*, each with two species in Australia and one in New Caledonia.

Australian-Papuan genera (I) are centred in Australia and New Guinea, such as *Agathis, Corynocarpus, Euroschinus, Flindersia* and *Sphenostemon. Cupaniopsis* is placed here; 26 of its 60 described species are New Caledonian but there are also many in New Guinea and some in Australia.

Malesian-Papuan genera (G) have their centre of diversification in Malesia or New Guinea (with the Solomons and Fiji), or covering both these areas, and are poorly represented in Asia, Australia and Polynesia. Typical examples are *Bureavella* and *Neuburgia*.

Indo-Malesian genera (F), mainly Asian and Malesian, are little represented in Australia and the Pacific, their distributions often ending in New Caledonia or Fiji. This group, which oddly contains 12 orchid genera, is exemplified by *Dacrycarpus, Procris, Acanthephippium, Appendicula* and *Coelogyne*.

Indo-Australian genera (D) occur in continental Asia, Malesia, Australia and the Pacific, but are absent or almost so in Africa, such as *Agapetes* (sensu Sleumer 1966), *Desmos, Neisosperma* and *Pachygone*.

Palaeotropical genera (G) are absent only from America.

Pantropical genera (A).

RESULTS

The New Caledonian rainforest, as defined above, has 1499 described species of phanerogams, distributed in 365 genera and 108 families (Appendix 1). A comparison with the whole native phanerogamic flora is given in Table 1, showing that the rainforest has 46% of the genera and species and 66.7% of the families represented in the whole flora. It is, with almost half the species, the richest formation in the Territory.

The level of specific endemism for the whole native phanerogamic flora is about 76%, well below the earlier estimates of Baumann-Bodenheim (1956) and Guillaumin (1964a), whose excessive figure of 90% has often been repeated. Endemism, as might be expected, is at all systematic ranks highest in the rainforest where all five endemic families occur.

TABLE 1. COMPARISON OF THE RAINFOREST FLORA WITH THE WHOLE NATIVE FLORA

	Species			Genera			Families	
	Total	Endemic	Endemic %	Total	Endemic	Endemic %	Total	Endemic
Native flora	3256	2476	76.0	787	108	13.7	182	5
Rainforest flora	1499	1345	89.7	365	82	22.4	108	5
Rainforest flora as a percentage of total flora	46.0			46.4			59.3	

Floristic affinities

The distribution spectrum is shown in Table 2. Genera of wide distribution (A, C, D) represent 45.4% of the rainforest flora, and Malesian genera 9.6%. The Australian element (H) is small (3%*), but reaches the more significant level of 10.4% when Australian-Papuan genera (I) are included. The complete absence of American genera may be noted. This element, though not abundant, does occur in New Caledonia (*Lindenia*, Rubiaceae), but is absent from the rainforest. Southern genera (Subantarctic Pacific and Subantarctic) are mainly gymnosperms — *Araucaria, Dacrydium, Decussocarpus, Libocedrus, Podocarpus* and *Prumnopitys*. This old Gondwanian relict element preserved in the rainforest indicates very ancient relationships between the territories where it still exists. Pacific genera (L) are few (4.1%). The most striking feature of Table 2 is, however, the large number of endemic genera (82, more than 22% of the total). Adding the 15 New Caledonian subendemic genera gives 97 genera (26.5%) confined to or centred in New Caledonia and belonging to the most primitive families — Amborellaceae, Monimiceae, Myricaceae, Oncothecaceae, Palmae, Paracryphiaceae, Proteaceae, Winteraceae, etc.

*This figure, as will be seen later, does not reflect the floristic links between the two territories.

TABLE 2. DISTRIBUTION OF RAINFOREST GENERA

Type	Code	Number of Genera	Percentage of Total	
Pantropical	A	69	18.9	
Palaeotropical	C	51	13.9	45.4
Indo-Australian	D	46	12.6	
Indo-Malesian	F	17	4.7	
Malesian-Papuan	G	18	4.9	9.6
Australian	H	11	3.0	
Australian-Papuan	I	27	7.4	10.4
Subantarctic Pacific	J	6	1.7	
Subantarctic	K	8	2.2	3.9
Pacific	L	15	4.1	
Endemic	E	82	22.4	
New Caledonian (subendemic)	B	15	4.1	26.5
TOTAL		365	100	

Some endemic genera (*Basselinia, Myodocarpus, Zygogynum*) have a wide range of species, suggesting that their evolution has continued during a long period of isolation. Most, however, are oligotypic, many even monotypic, and appear as relicts at the end of an evolutionary line.

Floristic affinities may be evaluated in several ways. The number of genera shared between New Caledonia and various other territories is considered first (Table 3). The number of genera in common is high for New Guinea (246), Malesia (235) and Australia (233), and somewhat less for Fiji (192), continental Asia (188) and the New Hebrides (175).

These high figures are inflated by the 69 pantropical genera that mask the true affinities and whose presence, due to efficient dispersal, in various areas does not necessarily reflect floristic relationships. The comparison may thus be improved by eliminating all the pantropical genera. Tables 3 and 4 show a general reduction in shared genera when pantropical genera are not considered. This reduction is not, however, uniform (Fig. 2), being:

- 18% for America, which drops from 12th to 15th place
- 10–12% for Africa, Asia and the North Pacific
- 7–8% for Malesia, New Guinea, Australia, the Solomons, the New Hebrides, Fiji and Tonga–Samoa, the first six of these, after some changes in relative position, now taking the lead
- 5% for Lord Howe, Norfolk and Polynesia
- 1% for New Zealand. (Fig. 3.)

The last figures are easily explained, as pantropical genera are few in these essentially extratropical areas. Table 4 thus shows enhanced floristic affinities primarily with New Guinea (60%), Australia (57%), Malesia (56%), and then with Fiji (45%), the Solomons (42%) and the New Hebrides (40%). New Zealand (14.5%) is well behind.

One could eliminate similarly other widespread elements such as, for example, the palaeotropical genera, but this approach is limited as the absence of a genus from the whole American continent is in itself biogeographically significant.

TABLE 3. NEW CALEDONIAN RAINFOREST GENERA PRESENT IN OTHER AREAS

Total genera: 365	Africa	Asia	Malesia	New Guinea	Australia	Solomons	New Hebrides	Lord Howe	Norfolk	New Zealand	Fiji	North Pacific	Polynesia	Samoa–Tonga	America
Genera present	131	188	235	246	233	184	175	58	37	56	192	145	92	148	81
Percentage	35.9	51.5	64.3	67.4	63.8	50.4	47.9	15.9	10.1	15.3	52.6	39.7	25.2	40.5	22.2

TABLE 4. NEW CALEDONIAN RAINFOREST GENERA (LESS THE PANTROPICAL ELEMENT) PRESENT IN OTHER AREAS

Total genera: 296	Africa	Asia	Malesia	New Guinea	Australia	Solomons	New Hebrides	Lord Howe	Norfolk	New Zealand	Fiji	North Pacific	Polynesia	Samoa–Tonga	America
Genera present	69	121	166	178	168	124	119	31	22	43	134	93	62	99	12
Percentage	23.3	40.9	56.1	60.1	56.7	41.9	40.2	10.4	7.4	14.5	45.2	31.4	20.9	33.4	4.0

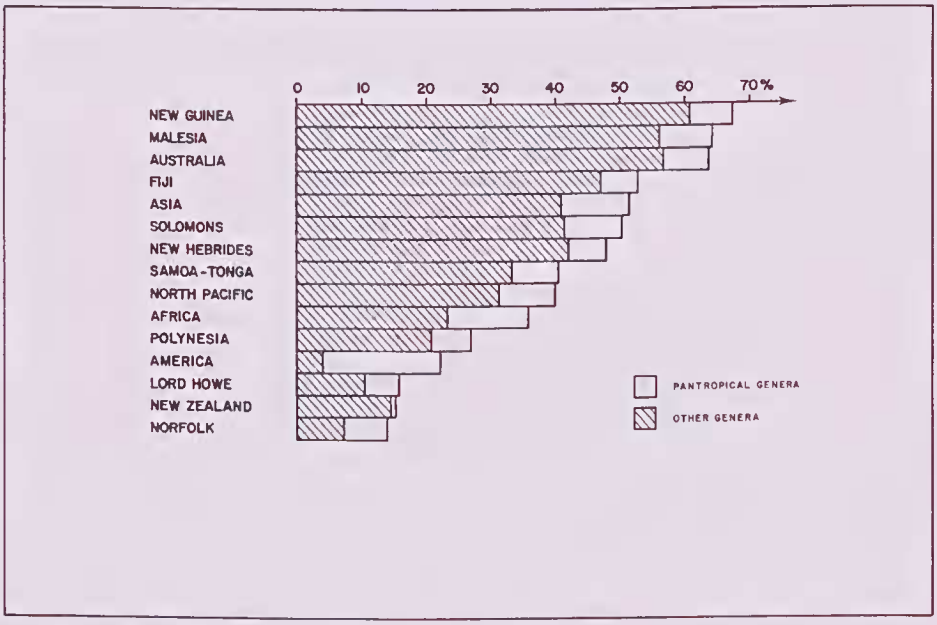

Figure 2. Graphic representation of Tables 3 and 4.

It is clear that the fewer the territories containing a taxon, the greater is its importance in showing their floristic affinity. A genus found only in two territories implies closer floristic links between them than does one common to both but occurring also in other regions, particuarly if these are extensive and geographically distant. The problem may thus be approached in another way by analysing the genera shared by New Caledonia and one only of the other

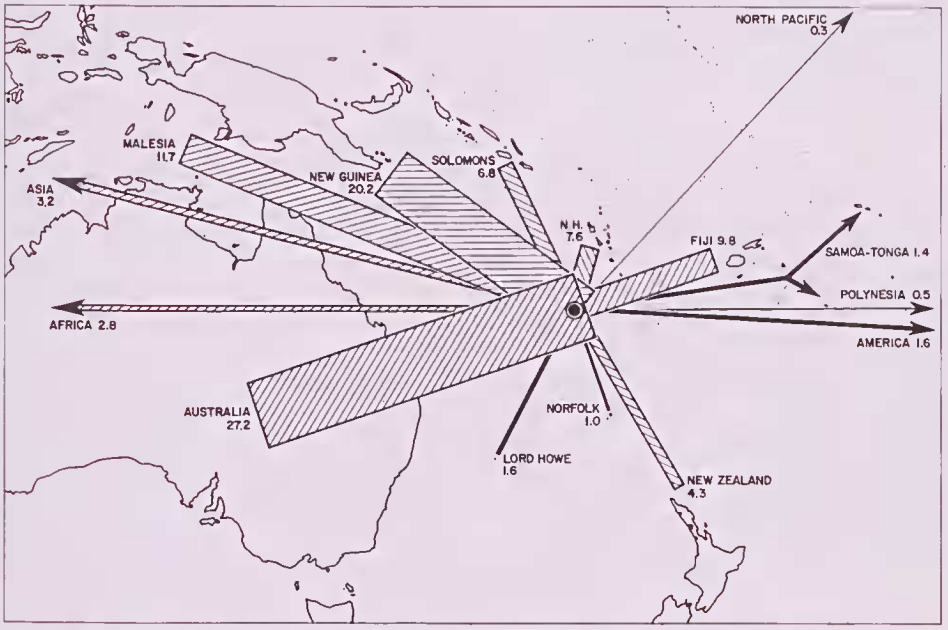

Figure 3. Floristic relationships of the New Caledonian rainforest.

phytogeographic areas considered (Table 5). In contrast with the previous results, Australia heads the list with seven genera (*Argophyllum, Canarium* (section *Canariellum*), *Campynema, Duboisia, Medicosma* (T. G. Hartley pers. comm.), *Niemeyera, Virotia*) shared with New Caledonia alone, as against three only (*Hunga, Periomphale, Sloanea* subgen. *Antholoma*) for New Guinea. Next follow with two genera each Fiji (*Acmopyle, Cyphosperma*) and the New Hebrides (*Cyclophyllum, Dizygotheca*). Africa appears in Table 5 with the genus *Cunonia*, which has one species, *C. capensis*, in South Africa, a striking example of relict Gondwanian distribution.

TABLE 5. GENERA LIMITED TO NEW CALEDONIA AND ONE OTHER TERRITORY

		Africa	Asia	Malesia	New Guinea	Australia	Solomons	New Hebrides	Lord Howe Is.	Norfolk Is.	New Zealand	Fiji	North Pacific	Polynesia	Samoa–Tonga	America	Distrib. type	New Caledonia
AMAR.	*Campynema*					1											L	
* BURS.	*Canarium* (Sect. *Canariellum*)					1											H	2
ESCA.	*Argophyllum*					1											H	2
PROT.	*Virotia*					1											B	2
RUTA.	*Medicosma*					1											I	
SAPO.	*Niemeyera*					1											H	
SOLA.	*Duboisia*					1											H	
ALSE.	*Periomphale*				1												B	2
CHRY.	*Hunga*				1												B	2
* ELAE.	*Sloanea* (s.g. *Antholoma*)				1												G	
PALM.	*Cyphosperma*											1					L	
PODO.	*Acmopyle*											1					L	
ARAL.	*Dizygotheca*							1									B	2
RUBI.	*Cyclophyllum*							1									B	2
WINT.	*Belliolum*						1										I	
CUNO.	*Cunonia*	1															K	2

TABLE 6. GENERA LIMITED TO NEW CALEDONIA AND TWO OTHER TERRITORIES

		Africa	Asia	Malesia	New Guinea	Australia	Solomons	New Hebrides	Lord Howe Is.	Norfolk Is.	New Zealand	Fiji	North Pacific	Polynesia	Samoa–Tonga	America	Distrib. type	New Caledonia
ANAC.	*Euroschinus*				1	1											I	2
MELI.	*Anthocarapa*				1	1											I	
PHIL.	*Eustrephus*				1	1											I	
RUTA.	*Geijera*				1	1											I	
SPHE.	*Sphenostemon*				1	1											I	
ELAE.	*Dubouzetia*			1	1												G	
PODO.	*Falcatifolium*			1	1												G	
ANON.	*Richella*			1								1					G	
MYRT.	*Piliocalyx*							1				1					B	2
CESA.	*Storckiella*					1						1					L	
GESN.	*Coronanthera*					1	1										B	2
THYM.	*Lethedon*					1		1									B	2
ORCH.	*Drymoanthus*					1					1						L	
EUPH.	*Baloghia*					1				1							B	2

TABLE 7. GENERA LIMITED TO NEW CALEDONIA AND THREE OTHER TERRITORIES

		Africa	Asia	Malesia	New Guinea	Australia	Solomons	New Hebrides	Lord Howe Is.	Norfolk Is.	New Zealand	Fiji	North Pacific	Polynesia	Samoa–Tonga	America	Distrib. type	New Caledonia
BIGN.	*Deplanchea*			1	1	1											I	
FLIN.	*Flindersia*			1	1	1											I	
PROT.	*Stenocarpus*			1	1	1											I	2
SAPO.	*Beccariella*			1	1	1											D	
LORA.	*Amylotheca*				1	1									1		I	
BALO.	*Balanops*					1		1				1					B	2
MYRT.	*Austromyrtus*					1		1				1					L	
WINT.	*Bubbia*				1	1			1								I	
EPAC.	*Dracophyllum*					1			1		2						L	
CUPR.	*Libocedrus*				1						1					1	J	
ORCH.	*Chamaeanthus*		1	1				1									G	

Tables 6, 7, 8, 9 and 10 show the genera shared exclusively by New Caledonia with two, three, four, five or six other territories. To go further would be unprofitable as we come back to the very widespread genera whose distributions are less and less significant. In each of these tables, Australia, followed fairly closely by New Guinea, has most genera in common with New Caledonia. An attempt may be made to quantify these affinities by assigning to the different territories a correlation coefficient proportional to the number of common genera and inversely proportional to the number of territories in which they occur. The five genera *Anthocarapa, Euroschinus, Eustrephus, Geijera* and *Sphenostemon* occur, for example, apart from New Caledonia, only in the two territories Australia and New Guinea, each of which is assigned the coefficient $5/2 = 2.5$.

TABLE 8. GENERA LIMITED TO NEW CALEDONIA AND FOUR OTHER TERRITORIES

		Africa	Asia	Malesia	New Guinea	Australia	Solomons	New Hebrides	Lord Howe Is.	Norfolk Is.	New Zealand	Fiji	North Pacific	Polynesia	Samoa–Tonga	America	Distrib. type	New Caledonia
CUNO.	*Acsmithia*			1	1	1						1					I	2
EUPH.	*Austrobuxus*			1	1	1						1					H	2
ANON.	*Desmos*			1	1	1						1					D	
RUBI.	*Coelospermum*		1	1	1	1											D	
ORCH.	*Cleisostoma*		1	1	1	1											G	
CUNO.	*Geissois*					1	1	1				1					H	2
MYRT.	*Xanthostemon*			1	1	1	1										I	2
SAPO.	*Bureavella*			1	1	1	1										G	
ORCH.	*Trachoma*		1	1		1		1									D	
CORY.	*Corynocarpus*				1	1		1			1						I	
APOC.	*Pagiantha*		1	1			1					1					F	
ORCH.	*Acianthus*				1	1	1				1						H	2
LILI.	*Arthropodium*	3			1	1					1						H	
FAGA.	*Nothofagus*				1	1					1					1	J	
ARAU.	*Araucaria*				1	1				1						1	J	2
ORCH.	*Rhynchophreatia*			1	1	1							1				G	
CYPE.	*Costularia*	1		1	1	1											C	
ICAC.	*Apodytes*	1	1	1		1											K	

TABLE 9. GENERA LIMITED TO NEW CALEDONIA AND FIVE OTHER TERRITORIES

		Africa	Asia	Malesia	New Guinea	Australia	Solomons	New Hebrides	Lord Howe Is.	Norfolk Is.	New Zealand	Fiji	North Pacific	Polynesia	Samoa–Tonga	America	Distrib. type	New Caledonia
ARAL.	*Delarbrea*			1	1	1	1	1									B	2
MYRT.	*Rhodomyrtus (Archirhodomyrtus)*		1	1	1	1	1										I	
SAXI.	*Polyosma*		1	1	1	1	1										D	
ORCH.	*Pterostylis*			1	1	1			1		1						H	
SAXI.	*Quintinia*			1	1	1		1			1						D	
PODO.	*Prumnopitys*			1	1	1					1					1	J	
MONI.	*Hedycarya*					1		1			1	1			1		B	2
MYRT.	*Tristaniopsis*		1	1	1	1						1					D	
DILL.	*Hibbertia*	1		1	1	1						1					H	
OLEA.	*Olea*	2	1	1		1			1								C	
BIGN.	*Pandorea*			1	1	1	1		1								1	
PODO.	*Decussocarpus*			1	1		1					1				1	J	
RHIZ.	*Crossostylis*						1	1				1		1	1		L	
ORCH.	*Earina*							1			1	1		1	1		L	
ORCH.	*Acanthephippium*		1	1	1							1			1		F	

TABLE 10. GENERA LIMITED TO NEW CALEDONIA AND SIX OTHER TERRITORIES

		Africa	Asia	Malesia	New Guinea	Australia	Solomons	New Hebrides	Lord Howe Is.	Norfolk Is.	New Zealand	Fiji	North Pacific	Polynesia	Samoa–Tonga	America	Distrib. type	New Caledonia
EUPH.	*Codiaeum*			1	1	1	1	1				1					1	
CASU.	*Gymnostoma* (*Casuarina*)			1	1	1	1	1				1					G	2
* GOOD.	*Scaevola* (Sect. *Scaevola*)			1	1		1					1	1	1			L	
MYRS.	*Tapeinosperma*			1	1	1	1	1				1					L	
ARAU.	*Agathis*			1	1	1		1			1	1					1	2
ORCH.	*Chrysoglossum*		1	1	1		1	1				1					F	

Adding all the coefficients* obtained for the territories appearing in Tables 5 to 10 gives the totals† shown in Table 11 (converted to percentages in the second column). This confirms the positions of Australia (27%) and New Guinea (20%) as the territories with the closest floristic affinities, followed at some distance by Malesia (12%) and then Fiji (10%), the New Hebrides (8%) and the Solomons (7%). New Zealand has only 4%. It is no surprise to see thus confirmed and amplified the conclusions reached for the whole New Caledonian flora (Thorne 1965) (Table 11).

The distribution area of the great majority of genera, apart from the southern Gondwanian element (Subantarctic and Subantarctic Pacific), is to the west of New Caledonia. Two genera only, *Crossostylis* and *Earina*, are centred to the east and suggest a Pacific island origin.

TABLE 11. FLORISTIC AFFINITIES AS SHOWN BY THEIR CORRELATION COEFFICIENTS

Ranking	Geographical Division	Correlation Coefficient	Correlation Coefficient (%)
1	Australia	21.19	27.2
2	New Guinea	15.77	20.2
3	Malesia	9.13	11.7
4	Fiji	7.63	9.8
5	New Hebrides	5.90	7.6
6	Solomons	5.27	6.8
7	New Zealand	3.22	4.3
8	Asia	2.49	3.2
9	Africa	2.15	2.8
10	Lord Howe	1.26	1.6
11	America	1.23	1.6
12	Samoa–Tonga	1.13	1.4
13	Norfolk	0.75	1.0
14	Polynesia	0.40	0.5
15	North Pacific	0.25	0.3
	TOTAL	77.87	100.0

*These decrease from Table 6 to Table 10 as the denominator increases with the number of territories. The coefficients are negligible for more than six other territories.

†It might theoretically be objected that these coefficients depend on the delimitation of the territories chosen. Thus the exclusive presence of a genus outside New Caledonia in two units A and B of very different size (e.g. Australia and Norfolk) gives each the coefficient 1/2 = 0.5. The large unit A could be divided into A_1, A_2, A_3 (e.g. Queensland, Tasmania, the rest of Australia). If the genus occurs in all three, they have each the coefficient 1/4 = 0.25, as also now has B, as against a total of 0.75 for A when the coefficients for the three sub-units are added. The system chosen thus seems to favour small territories at the expense of larger areas. This does not, in fact, reflect the true situation. A genus restricted to a few phytogeographical regions is most unlikely to occur throughout a vast territory such as Africa, America, Australia or New Guinea. If the divisions are accepted it will probably occur only in A_1, A_2, A_3, which gives the same results as in the first case.

Summing up, the results confirm that the rainforest genera come overwhelmingly from the north-west, particular floristic links existing with Australia and New Guinea and at a lower level with Malesia, Fiji, the New Hebrides and the Solomons, New Zealand taking only seventh place.

Origin of the New Caledonian flora

The geological history of New Caledonia must now be evoked in order to relate these results to the origin of its flora. This history, long obscure and controversial, now seems clearer thanks to recent synthetic accounts, particularly that of Paris (1981).

The main lines are as follows — during the Permian (corresponding to the oldest dated rocks of New Caledonia) and the whole secondary era, the present Norfolk Ridge represented a discontinuous insular arc (a series of islands rather than land connections) joining New Guinea to New Zealand. Palaeomagnetic data show that this arc was situated off the Queensland coast, almost parallel to the present Great Barrier Reef, thus further north and much closer to Australia than today. It suffered intense tectonic movements in the lower Cretaceous with the Rangitata Orogeny and the opening of the Tasman Sea. Dislocations followed by various foldings and metamorphic changes produced first the framework of the Chaîne Centrale and then the rest of New Caledonia in its present form. The Tertiary saw a series of submersions, especially in the Palaeocene and the middle Eocene (the date of the first reef formation which marks a warmer period), alternating with general emergences. Land areas of varying size that may be supposed to have existed near New Caledonia even during periods of general submergence would provide refuges and stepping-stones for the vegetation.

A major event of the upper Eocene was the outpouring of peridotites that covered almost all of New Caledonia to a thickness of about 2000 m. This very slow phenomenon, begun under water and continued in the atmosphere, occurred about 38 million years ago and had very important effects on plant and animal life. Several points may be emphasized:

1. The complete absence, since at least the Permian, of land connections between New Caledonia and other continental land masses explains the absence of native land mammals except bats and the great poverty in some other zoological groups — freshwater fish, amphibians, reptiles and some terrestrial invertebrates (Stevens 1977).

2. Australia (particularly the north-eastern part) and the mountains of New Guinea were close to New Caledonia throughout the Permian and for most of the secondary era (up to the lower Cretaceous). The whole Gondwanian element (the ancestors of our gymnosperms and most of our primitive angiosperms*) could thus pass readily as far as New Zealand† by short-distance dispersal mechanisms along this island arc without long water gaps. This explains the 'continental' features of a large part of the New Caledonian flora§.

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*The primitive dicotyledon *Homoxylon neocaledonicum* found (Boureau 1952) in the Carnian of western New Caledonia appears to bring the origin of the dicotyledons back to the Triassic.

†Or in the other direction from New Zealand towards New Guinea, as at this time New Zealand must have been close to Antarctica and South America (cf. the hypothesis of southern migrations (Cranwell 1964, Raven & Axelrod 1974)). The dominant floristic affinities with Australia, New Guinea and Malesia suggest, however, a preponderant migration from the north.

§Fournier (1874) based a similar hypothesis on the floristic affinities of New Caledonian ferns.

3. Migration routes, whether north-south or inversely according to the climatic conditions at different epochs, were cut during the long isolation following the dislocations and orogenic movements. This led to a high level of endemism and in certain genera (*Agathis, Araucaria, Argophyllum, Geissois, Nothofagus, Phyllanthus, Pittosporum, Psychotria, Stenocarpus, Xanthostemon,* etc.) a speciation surprisingly active in view of the small surface of the island. This prolonged isolation also explains why many typically Australian taxa (phyllodineous *Acacia, Banksia, Eucalyptus, Macrozamia* and 10 or so forest genera of Proteaceae in the east and particularly the north-east of the continent) are absent or very poorly represented here, as are families common to Australia and New Guinea (Eupomatiaceae, Himantandraceae) or present in both though also represented further afield (Cochlospermaceae, Hamamelidaceae, Myristicaceae, Ochnaceae, Theaceae, etc.).

This ancient flora, diversified by much local evolution, received new elements that from the lower Cretaceous onwards can only have come by long-distance transport.

4. In the early Tertiary the peridotites covering most of the island with a highly selective substrate eliminated much of the ancient flora, discouraged the installation of certain modern families (e.g. Compositae, Gramineae) well adapted by light wind-borne diaspores to long-distance dispersal, their place being taken by others apparently better adapted such as Cyperaceae, and finally set off a new phase of evolution.

Effect of substrate on richness in species, endemism and conservation of primitive forms

Floristic richness (Table 12). The 1499 known rainforest species include 77 epiphytes and 64 others on whose edaphic status information is lacking. Out of the 1358 species of known edaphic status 30.4% are limited to ultrabasic rocks (U), 41.3% to other types of rock (A) and 28.3% occur on both (I). The forest flora is poorer on ultrabasic rocks (U + I) than on other substrates (A + I). This position is enhanced on excluding all species of types MA, MU and MI, ecologically adaptable enough to occur also in other formations, so as to consider only the strictly forest species (FA, FU and FI), which gives 535 FA species against 291 of type FU. This relative floristic poverty of the forest on ultrabasic rocks may in part be imputed to the lower surface that they cover in New Caledonia*. This factor cannot, however, account for so great a difference (little more than half as many strictly forest species), especially as conditions of altitude, topography and rainfall are equally varied in the two cases. The flora of type A also appears more specialized as it shares only 26 species with other formations such as secondary forest, thickets, savannah, sclerophyll forest, coastal forest, etc. The flora of type U, on the other hand, is less distinctive with 122 species found also in other formations, mostly maquis (open formations). The floristic relationships between maquis and forest on ultrabasic rocks suggest that they are linked, maquis being derived from forest at high altitudes or by disturbance.

Originality and endemism (Table 13). The proportion of endemics (89.4%) for the whole rainforest flora (F + M) of type A is, though still very high, lower

*The area of forest on peridotite may for the main island be estimated as between 1/3 and 2/5 of the total. The Loyalty Islands may be neglected here as their impoverished flora contains mostly species in common with the main island.

than that for type U (98.3%); for exclusively forest species (F) the corresponding figures are 90.4% and 97.9%. In absolute number, endemic species of type A (487) are not far from twice as many as those of type U (285). Non-endemic forest species are also more numerous in type A (49) than in type U (six). (Fig. 4.)

TABLE 12. DISTRIBUTION OF RAINFOREST SPECIES ON DIFFERENT SUBSTRATES
(percentages for 1358 species of known edaphic status)

Formation	Substrate* U		A		I		Total U+A+I	Ephiphytes (species)	Total U+A+I epiphytes
	Species	%	Species	%	Species	%			
Forest	291	21.4	535	39.4	273	20.1	1099	76	1175
Mixed	122	9.0	26	1.9	111	8.2	259	1	260
Total F+M	413	30.4	561	41.3	384	28.3	1358	77	1435
Non-epiphytes of uncertain edaphic status									64
TOTAL rainforest species									1499

*U — species growing only on ultrabasic substrates; A — species absent from ultrabasic substrates; I — species growing on both types of substrate.

TABLE 13. PROPORTION OF ENDEMIC SPECIES IN THE RAINFOREST
(percentages based on totals shown in Table 12)

Formation	Substrate* U		A		I		Total U+A+I+	Ephiphytes (species)	Total U+A+I epiphytes
	Species	%	Species	%	Species	%			
Forest	285	97.9	487	90.4	241	88.2	1013	46	1059
Mixed	121	99.1	16	61.5	94	84.6	231	0	231
Total F+M	406	98.3	503	89.4	335	87.2	1244	46	1290
Non-epiphytes of uncertain edaphic status									55
TOTAL endemic rainforest species									1345

*U — species growing only on ultrabasic substrates; A — species absent from ultrabasic substrates; I — species growing on both types of substrate.

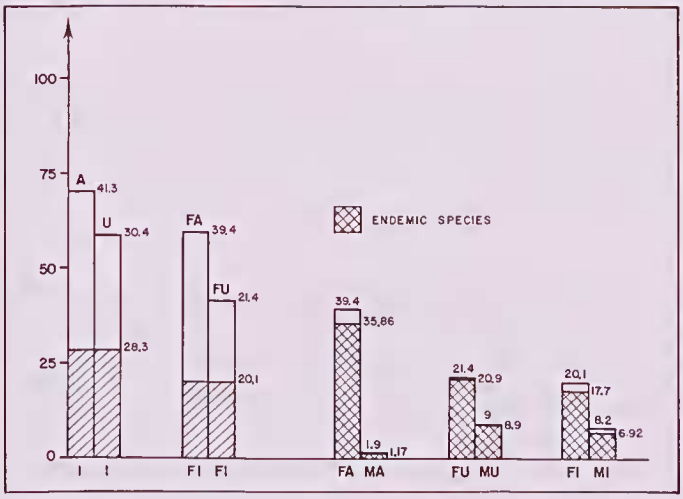

Figure 4. Relative importance of endemic species (based on Tables 12 and 13).

The 108 families represented in the rainforest may be divided into five groups by their reaction (A, U, I) to substrates.

1. The rainforest species of 30 families are all (*italics*) or mostly indifferent (I) to substrate:

Agavaceae, *Alangiaceae, Alseuosmiaceae, Amaryllidaceae,* Ampelidaceae, Anacardiaceae, *Aquifoliaceae, Atherospermataceae, Corynocarpaceae,* Dilleniaceae, *Flindersiaceae,* Guttiferae, *Hernandiaceae,* Icacinaceae, *Liliaceae,* Linaceae, Menispermaceae, Oleacaceae, Orchidaceae, *Paracryphiaceae, Passifloraceae, Philesiaceae,* Podocarpaceae, Rhamnaceae, Rutaceae, Santalaceae, *Simaroubaceae*, Smilacaceae, Solanaceae, Violaceae.

2. The rainforest species of 48 families are all (*italics*) or mostly type A:

Acanthaceae, *Amborellaceae,* Apocynaceae, Araceae, Araliaceae, Asclepiadaceae, Bischofiaceae, Celastraceae, Caesalpiniaceae, Chrysobalanceae, Commelinaceae, Cyperaceae, *Dioscoreaceae,* Ebenaceae, Elaeocarpaceae, *Ericaceae,* Euphorbiaceae, Flacourtiaceae, Gramineae, Hippocrateaceae, Lauraceae, Lecythidaceae, Loganiaceae, Meliaceae, Monimiaceae, Moraceae, Myrsinaceae, Myrtaceae, Nyctaginaceae, Palmae, Pandanaceae, Papilionaceae, Piperaceae, Pittosporaceae, Rhizophoraceae, Rubiaceae, Sapindaceae, Sapotaceae, Saxifragaceae, Sterculiaceae, Symplocaceae, *Taxaceae, Tiliaceae, Trimeniaceae, Ulmaceae,* Urticaceae, Verbenaceae, Winteraceae.

3. The rainforest species of 19 families are all (*italics*) or mostly type U:

Araucariaceae, Balanopaceae, Burseraceae, Casuarinaceae, Cunoniaceae, *Cupressaceae,* Epacridaceae, Escalloniaceae, Fagaceae, Flagellariaceae, Loranthaceae, Mimosaceae, *Myricaceae,* Nepenthaceae, *Oncothecaceae,* Phellinaceae, Sphenostemonaceae, *Strasburgeriaceae,* Thymeleaceae.

4. The two families Goodeniaceae and Triuridaceae have the same number of rainforest species in type A and type U.

5. Eight families (Annonaceae, Balanophoraceae, Bignoniaceae, Capparaceae, Connaraceae, Cucurbitaceae, Gesneriaceae and Proteaceae) are for various reasons hard to assign definitely to the types A, U and I.

Three endemic families (Oncothecaceae, Phellinaceae, Strasburgeriaceae) are in the third group but Amborellaceae is in the second and Paracryphiaceae in the first group. Similarly, 22 endemic genera belong completely (as to their rainforest species) to type U against 17 for type A and 12 for type I*.

Gymnosperms are fewer in type A (4 species: Araucariaceae, Taxaceae) than in type U (13 species: Araucariaceae, Cupressaceae, Podocarpaceae); they are, however, well represented in type I (11 species: Araucariaceae, Podocarpaceae). This lack among the species of type A is largely compensated for by

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*Type A: *Amborella, Alloschmidia, Austrotaxus, Cyphophoenix, Depanthus, Exospermum, Gongrodiscus, Kentiopsis, Kibaropsis, Lavoixia, Leptostylis, Mackeea, Moratia, Pichonia, Pyriluma, Rhopalobrachium, Veillonia.*

Type U: *Actinokentia, Apiopetalum, Arillastrum, Botryomeryta, Campecarpus, Canacomyrica, Cerberiopsis, Clinosperma, Cocconerion, Coilochilus, Daenikera, Dendrophyllanthus, Gastrolepis, Hachettea, Morierina, Neoguillauminia, Oncotheca, Pachyplectron, Pleurocalyptus, Pritchardiopsis, Sebertia, Strasburgeria.*

Type I: *Amphorogyne, Campynemanthe, Chambeyronia, Clematepistephium, Cyphokentia, Nemuaron, Paracryphia, Parasitaxus, Sarcomelicope, Sleumerodendron, Strobilopanax, Zieridium.*

the great abundance of primitive monocotyledons (Palmae, Pandanaceae) and particularly by the numerous members of archaic families the vessels of whose wood are absent or primitive (Amborellaceae, Annonaceae, Atherospermataceae, Chloranthaceae, Menispermaceae, Monimiaceae, Piperaceae, Trimeniaceae, Winteraceae). In these families, considered (Takhtajan 1969) as living fossils, type A has 29 rainforest species, against 18 in type U and 12 in type I.

Finally, if the peridotites, covering New Caledonia slowly and massively, induced a new wave of speciation (species of type U) and thus added to the originality and endemism of the flora, their contribution to its richness remains doubtful. Taking first the whole flora, it is not certain that the appearance of taxa associated with this new substrate compensated the inevitable loss of the part of the pre-Eocene flora unable to adapt to the new conditions. The evolutionary capacities of this ancient and already highly diversified flora are shown by the floristic wealth, the endemism and the abundance of unusual types present today in the forests on non-ultrabasic rocks in spite of the geological vicissitudes that they have suffered.

On a strictly comparative basis it is also clear from the floristic analyses that the peridotites, highly selective because of their peculiar chemical composition, provoke rather a relative impoverishment, not only for modern families (Boraginaceae, Compositae, Gramineae, Labiatae, Scrophulariaceae, etc.) but also for the total number of species, the endemics and the primitive forms. This casts doubt on the part often attributed to them (Virot 1956, Thorne 1965, Jaffré 1980) in conserving archaic ancestral forms. Such an effect, while it may well exist in maquis, seems, however, remarkably limited in rainforest. The persistence and the abundance of such relicts in all types of rainforest on whatever substrate stem rather from the extreme isolation of New Caledonia during its geological history.

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APPENDIX 1

List of rainforest species in New Caledonia

Symbols used

Column 1: E – Endemic
P – Native, non-endemic

Column 2: e – Epiphyte

Column 3: M – Forest species also in other formations
F – Strictly forest species

Column 4: U – Species limited to ultrabasic rocks
A – Species limited to other rocks
I – Species indifferent to substrate

ACANTHACEAE	
Graptophyllum	
G. balansae Heine	E — FA
G. pictum (L.) Griffith	P — FA
Hemigraphis	
H. reptans (G. Forster) T. Anderson ex Hemsley	P — MA
Justicia	
J. pinensis S. Moore	E — MA
Pseuderanthemum	
P. comptonii S. Moore	E — MI
P. repandum (G. Forster) Guillaumin	P — MI
AGAVACEAE	
Cordyline	
C. fruticosa (L. ex Stickman) A. Chevalier	P — FI
C. neocaledonica Linden	E — MU
ALANGIACEAE	
Alangium	
A. bussyanum (Baillon) Harms	E — FI
ALSEUOSMIACEAE	
Periomphale	
P. balansae Baillon	E — FI
P. gaultherioides (Gilg & Schlechter) Steenis	E — FI
P. neocaledonica (Gilg & Schlechter) Steenis	E — FI
P. pancheri Baillon	E — FI
AMARYLLIDACEAE	
Campynema	
C. neocaledonicum Rendle	E — FI
Campynemanthe	
C. viridiflora Baillon	E — FI
AMBORELLACEAE	
Amborella	
A. trichopoda Baillon	E — FA
AMPELIDACEAE	
Cayratia	
C. carnosa (Link) Gagnepain	P — FA
C. japonica (Thunberg) Gagnepain	P — FI

Cissus
C. glaucoramea Planchon P—MI
ANACARDIACEAE
Euroschinus
E. elegans Engler E—FI
E. obtusifolius Engler E—FI
E. verrucosus Engler E—FI
E. vieillardii Engler E—FI
Semecarpus
S. balansae Engler E—FU
S. neocaledonica Engler E—FU
ANNONACEAE
Desmos
D. lecardii (Guillaumin) R. E. Fries E—FU
D. tiebaghiensis (Daeniker) R. E. Fries E—MU
Polyalthia
P. nitidissima Bentham E—FI
Richella
R. obtusata (Baillon) R. E. Fries E—FA
Uvaria
U. baillonii Guillaumin E—MU
Xylopia
X. pancheri Baillon E—MU
X. vieillardii Baillon E—FA
APOCYNACEAE
Alstonia
A. balansae Guillaumin E—FA
A. boulindaensis Boiteau E—FU
A. coriacea Pancher ex S. Moore E—MU
A. lenormandii Heurck & Mueller Argovie E—MU
A. quaternata Heurck & Mueller Argovie E—FA
A. sphaerocapitata Boiteau E—FI
A. vieillardii Heurck & Mueller Argovie E—MU
Alyxia
A. baillonii Guillaumin E—FI
A. brevipes Schlechter E—FI
A. canalensis Guillaumin E—FA
A. glaucophylla Heurck & Mueller Argovie E—MU
A. integricarpa Boiteau E—FA
A. johnsoniae S. Moore E—FA
A. laurina Baillon E—FA
A. leucogyne Heurck & Mueller Argovie E—FI
A. loeseneriana Schlechter E—FA
A. longicarpa Boiteau E—FA
A. margaretae Boiteau E—FA
A. myrtoides Schlechter E—MI
A. ouhatchensis (Schlechter) Guillaumin ex Boiteau E—FA
A. stellata J. R. & G. Forster E—FA
A. suavis (Baillon) Schlechter E—MU
A. vieillardii Boiteau E—MA
Artia
A. balansae (Baillon) Pichon E—MI
A. francii (Guillaumin) Pichon E—MI
Cerbera
C. manghas L. P—MI
Cerberiopsis
C. candelabrum Vieillard ex Pancher & Sebert E—FU
Melodinus
M. aeneus Baillon E—FU
M. balansae Baillon E—MU
M. polyadenus Baillon E—MI
Neisosperma
N. brevituba (Boiteau) Boiteau E—FA
N. lifuana (Guillaumin) Boiteau E—FA
N. miana (Baillon ex White) Boiteau E—FU
N. seveneti (Boiteau) Boiteau E—MU
N. thiollierei (Montrouzier) Boiteau E—FU
Ochrosia
O. balansae (Guillaumin) Guillaumin E—FU
O. grandiflora Boiteau E—FA
O. silvatica Daeniker E—FU
Pagiantha
P. cerifera (Sebert & Pancher) Markgraf E—MU
Parsonsia
P. affinis Baillon E—FA
P. catalpaecarpa Baillon E—FA
P. crebriflora Baillon E—FU
P. edulis Guillaumin E—FA
P. flexuosa Baillon E—MA
P. laxiflora Guillaumin E—MI
P. linearis Baillon E—FA
P. longiflora Guillaumin E—FI
P. populifolia Baillon E—FA
P. scabra (Labillardière) Guillaumin E—FI
Rauvolfia
R. schumanniana (Schlechter) Boiteau E—FI
R. spathulata Boiteau E—FU
AQUIFOLIACEAE
Ilex
I. sebertii Pancher E—MI
ARACEAE
Epipremnum
E. pinnatum (L.) Engler P—FA
ARALIACEAE
Apiopetalum
A. arborcum E. G. Baker E—FU
A. glabratum Baillon E——
A. pennelii Viguier E—FU
A. velutinum Baillon E—MU
Arthrophyllum
A. angustatum (Baillon) Philipson E—FU
A. balansae (Baillon) Philipson E—FA
A. glaberrimum (Baumann–Bodenheim) Philipson E – FA
A. grandifolium (Guillaumin) Philipson E—MU
A. hederoides (Baumann–Bodenheim) Philipson E—FU
A. otopyrenum (Baillon) Philipson E—FU
A. schlechteri (Harms) Philipson E—FA
A. vieillardii (Baillon) Philipson E—FA
Botryomeryta
B. lecardii Viguier E—FU
Delarbrea
D. collina Vieillard P—FI
D. harmsi Viguier E—FA
D. longicarpa Viguier E—FU
D. montana Viguier E—FA
D. paradoxa Vieillard E—FA
Dizygotheca
D. apioidea (Baillon) Viguier E—FA
D. bailloni Viguier E——
D. coenosa Viguier E——
D. elegantissima (Veitch) Viguier & Guillaumin E——

D. fagueti (Baillon) Viguier E—FA
D. harmsii Viguier E——
D. lecardi Viguier E—FA
D. leptophylla Hemsley E——
D. ouveana Daeniker E—FA
D. parvifolia (Pancher & Sebert) Viguier E——
D. plerandroides Viguier E——
D. tenuifolia (Pancher) Viguier E—FU
D. toto (Baillon) Viguier E—MA
D. vieillardi (Baillon) Viguier E—FU

Meryta
M. balansae Baillon E—FI
M. coriacea Baillon E—FU
M. denhamii Seemann P—FA
M. gracilis Guillaumin E—FA
M. microcarpa Baillon E—FI
M. oxylaena Baillon E—FI
M. pandanicarpa Guillaumin E—FI
M. schlechteri Harms E—FA
M. sonchifolia Linden & André E—FI

Myodocarpus
M. brongniartii Dubard & Viguier E—FA
M. coronatus Dubard & Viguier E—FA
M. crassifolius Dubard & Viguier E—MU
M. elegans Dubard & Viguier E—FU
M. pinnatus Brongniart & Gris E—MI
M. simplicifolius Brongniart & Gris E—MI
M. vieillardii Brongniart & Gris E—FA

Schefflera
S. affinis Baillon E—FA
S. andreana Baillon E—FI
S. balansaeana Baillon E—FU
S. candelabrum Baillon E—FA
S. comboueiensis E. G. Baker E—MU
S. comptonii E. G. Baker E—FI
S. crassipes Baillon E—FU
S. cussoniae Baillon E—FU
S. elongata Baillon E—FU
S. emiliana Baillon E——
S. gabriellae Baillon E—FI
S. golip Baillon E—FA
S. lerati Viguier E—FU
S. marcellana Baillon E—FA
S. nono Baillon E—FU
S. pancheri Viguier E—FU
S. pseudocandelabrum Viguier E—FA
S. veillonorum Bernardi E—FA
S. vieillardii Baillon E—FI

Strobilopanax
S. macrocarpus (Baillon) Viguier E—FI
S. macrocephalus (Baillon) Viguier E—FI

Tieghemopanax
T. austrocaledonicus Viguier E—FI
T. balansae Viguier E—FA
T. bracteatus Viguier E—FI
T. lecardi Viguier E—FA
T. microbotrys Viguier E—FI
T. microcarpus Viguier E—FA
T. monticola Viguier E—FA
T. pulchellus Viguier E—FI
T. reflexus Viguier E—FI
T. sessiliflorus Viguier E—MI
T. suborbicularis Viguier E—MU

ARAUCARIACEAE

Agathis
A. corbassonii deLaubenfels E—FA
A. lanceolata Lindley ex Warburg E—FU
A. montana deLaubenfels E—FA
A. moorei (Lindley) Masters E—FI

Araucaria
A. bernieri Buchholz E—FU
A. biramulata Buchholz E—FU
A. columnaris (J. R. & G. Forster) J. D. Hooker E—FI
A. humboldtensis Buchholz E—FU
A. montana Brongniart & Gris E—FI
A. muelleri (Carrière) Brongniart & Gris E—FU
A. schmidii deLaubenfels E—FA
A. subulata Vieillard E—FU

ASCLEPIADACEAE

Hoya
H. limoniaca S. Moore E—FA
H. neocaledonica Schlechter E—FI

Marsdenia
M. brachycarpa (Baillon) Guillaumin E—FA
M. lyonsioides Schlechter E—FA
M. nigriflora Guillaumin E—MU
M. ouhatchensis Schlechter E—MI
M. pseudoparsonsia Guillaumin E—MI
M. raoulii Guillaumin E—MI
M. speciosa Baillon E—FA
M. tylophoroides Schlechter E—FA

Secamone
S. insularis Schlechter E—MI

Tylophora
T. anisotomoides Schlechter E—FA
T. insulincola S. Moore E—FA
T. micrantha Guillaumin E—FA
T. tapeinogyne Schlechter E—FA

ATHEROSPERMATACEAE

Nemuaron
N. vieillardii Baillon E—FI

BALANOPHORACEAE

Balanophora
B. fungosa J. R. & G. Forster P—MA

Hachettea
H. austrocaledonica Baillon E—FU

BALANOPACEAE

Balanops
B. balansae Baillon E—FU
B. microstachya Baillon E—FU
B. oliviformis Baillon E—FU
B. pachyphylla Baillon ex Guillaumin E—FI
B. pancheri Baillon E—FU
B. sparsiflora (Schlechter) Hjelmqvist E—FI
B. vieillardii Baillon E—FI

BIGNONIACEAE

Deplanchea
D. sessilifolia Vieillard ex Steenis E—MU
D. speciosa Vieillard E—MI

Pandorea
P. austrocaledonica (Bureau) Seemann E—FA

BISCHOFIACEAE

Bischofia
B. javanica Blume P—FA

BURSERACEAE

Canarium
C. balansae Engler E—FA
C. oleiferum Baillon E—FU
C. trifoliolatum Engler E—FI
C. whitei Guillaumin E—FU

CAPPARIDACEAE
Capparis
C. sp. E—MU
CASUARINACEAE
Casuarina
C. glaucescens Schlechter E—FU
C. webbiana Miquel E—FU
CELASTRACEAE
Cassine
C. cunninghamii (Montrouzier) Lobreau-Callen E—FA
Elaeodendron
E. clusiophyllum Baillon E—FU
E. curtipendulum Endlicher P—FA
E. pininsulare Huerlimann E—FU
E. tuk Guillaumin E——
Maytenus
M. fournieri (Pancher & Sebert) Loesener E—FI
M. hybanthifolia (Guillaumin) Guillaumin E—FA
Menepetalum
M. cassinoides Loesener E—FU
M. pachystimoides Loesener E—FU
M. salicifolium Loesener E—FA
M. schlechteri Loesener E—MI
Salaciopsis
S. glomerata Huerlimann E—FA
S. megaphylla (Poisson ex Guillaumin) Loesener E—FU
S. neocaledonica E. G. Baker E—FA
S. sparsiflora Huerlimann E—FI
S. tapeinospermophylla Huerlimann E—FA
CAESALPINIACEAE
Caesalpinia
C. crista L. P—MA
C. decapetala (Roth) Alston P—FU
C. rubiginosa Guillaumin E—FA
C. schlechteri Harms E—FA
Intsia
I. bijuga (Colebrooke) Kuntze P—FA
Mezoneurum
M. baudouinii Guillaumin E—FU
M. montrouzieri Guillaumin E—MU
Storckiella
S. comptonii E. G. Baker E—MI
S. pancheri Baillon E—MI
CHLORANTHACEAE
Ascarina
A. rubricaulis Solms E—FU
A. solmsiana Schlechter E—FI
CHRYSOBALANACEAE
Hunga
H. lifouana (Daeniker) Prance E—FA
H. rhamnoides (Guillaumin) Prance E—FI
COMMELINACEAE
Aneilema
A. biflorum R. Brown P—MA
CONNARACEAE
Santaloides
S. balanseanum (Baillon) Schellenberg E—MU
S. vieillardii Schellenberg E—FA
CORYNOCARPACEAE
Corynocarpus
C. dissimilis Hemsley E—FI
CUCURBITACEAE
Diploecyclos
D. palmatus (L.) C. Jeffrey P——
CUNONIACEAE
Aesmithia
A. austrocaledonica (Brongniart & Gris) Hoogland E—FI
A. laxiflora Hoogland E—FA
A. pedunculata (Schlechter) Hoogland E—FU
A. pubescens (Pampanini) Hoogland E—MU
A. undulata (Vieillard) Hoogland E—FA
Codia
C. albifrons Vieillard ex Guillaumin E—MU
C. arborea Brongniart ex Guillaumin E—FU
C. incrassata Pampanini E—FA
C. montana J. R. & G. Forster E—MI
Cunonia
C. alticola Guillaumin E—FU
C. austrocaledonica Brongniart ex Guillaumin E—FI
C. balansae Brongniart & Gris E—FU
C. bernieri Guillaumin E—FU
C. bullata Brongniart & Gris E—FU
C. montana Schlechter E—FI
C. ouaiemensis Guillaumin & Virot E—MA
C. pterophylla Schlechter E—FU
C. pulchella Brongniart & Gris E—FI
C. vieillardi Brongniart & Gris E—FU
Geissois
G. hippocastaneifolia Guillaumin E—FU
G. hirsuta Brongniart & Gris E—FU
G. intermedia Vieillard E—FI
G. montana Vieillard E—FA
G. polyphylla Lecard ex Guillaumin E—FA
G. racemosa Labillardière E—FI
G. trifoliolata Guillaumin E—FA
G. velutina Guillaumin E—FU
Paneheria
P. brunhesi Pampanini E—FA
P. calophylla Guillaumin E—MU
P. engleriana Schlechter E—FU
P. seberti Guillaumin E—FI
Weinmannia
W. dichotoma Brongniart & Gris E—FU
W. monticola Daeniker E—FA
W. paitensis Schlechter E—FU
W. serrata Brongniart & Gris P—FU
W. thornei Guillaumin E—FU

CUPRESSACEAE
Libocedrus
L. austrocaledonicus Brongniart & Gris E—FU
L. yateensis Guillaumin E—MU

CYPERACEAE
Baumea
B. veillonis Raynal E—FU
Carex
C. appressa R. Brown P—FI
C. brunnea Thunberg P—MI
C. dietrichiae Boeckeler P—FI
C. indica L. P—FA
C. inversonervosa Nelmes E—FA
C. neurochlamys F. Mueller P—FA
Costularia
C. sylvestris Raynal E—FU

Scleria	
S. ovinux Raynal	E—FA
S. rheophila Raynal	E—FA
Uncinia	
U. dawsonii Hamlin	E—FI
DILLENIACEAE	
Hibbertia	
H. baudouinii Brongniart & Gris	E—MU
H. catargyrea Guillaumin	E—FU
H. comptonii E. G. Baker	E—FA
H. oubatchensis Schlechter	E—FA
H. pancheri Briquet	E—FI
H. podocarpifolia Schlechter	E—FI
H. rubescens Vieillard ex Guillaumin	E——
Tetracera	
T. scandens (L.) Merrill	P—FI
DIOSCOREACEAE	
Dioscorea	
D. bulbifera L.	P—FA
EBENACEAE	
Diospyros	
D. austrocaledonica Hiern	E—FI
D. balansae Guillaumin	E—FU
D. elliptica (J. R. & G. Forster) P. S. Green	P——
D. fasciculosa (F. Mueller) F. Mueller	P—FA
D. lecardii Guillaumin	E—FA
D. leroyi Kostermans	E—FA
D. macrocarpa Hiern	E—FU
D. olen Hiern	P—FA
D. oubatchensis Kostermans	E—FA
D. pancheri Kostermans	E——
D. parviflora (Schlechter) Bakhuizen	E—FI
D. rufa (Labillardière) Fosberg	P—MI
D. xylopiaefolia Guillaumin	E—FA
ELAEOCARPACEAE	
Dubouzetia	
D. elegans Brongniart & Gris	E—FI
Elaeocarpus	
E. alaternoides Brongniart & Gris	E—MI
E. angustifolius Blume	P—FI
E. baudouinii Brongniart & Gris	E—FU
E. biflorus Tirel	E—FA
E. brachypodus Guillaumin	E—FI
E. bullatus Tirel	E—FA
E. castanaefolius Guillaumin	E—FA
E. colnettianus Guillaumin	E - FA
E. comptonii Baker f.	E—FA
E. dognyensis Guillaumin	E—FA
E. geminiflorus Brongniart & Gris	E—FA
E. guillainii Vieillard	E—FA
E. gummatus Guillaumin	E—FU
E. hortensis Guillaumin	P—FI
E. leratii Schlechter	E—FU
E. moratii Tirel	E—FA
E. nodosus Baker f.	E—MU
E. ovigerus Brongniart & Gris	F—FA
E. rotundifolius Brongniart & Gris	E—MI
E. seringii Montrouzier	E—MI
E. spathulatus Brongniart & Gris	E—MI
E. speciosus Brongniart & Gris	E—FU
E. toninensis Baker F.	E—FA
E. vaccinioides F. Mueller	E—FU
E. vieillardii Brongniart & Gris	E—FA
E. weibeliana Tirel	E—FU
E. yateensis Guillaumin	E—FU
Sloanea	
S. billardieri (Vicillard) A. C. Smith	E—FA
S. haplopoda (Guillaumin) A. C. Smith	E—FU
S. kogliensis Tirel	E—FA
S. lepida Tirel	E—FA
S. magnifolia Tirel	E—FU
S. montana (Labillardière) A. C. Smith	E—FI
S. ramiflora Tirel	E—FA
S. raynaliana Tirel	E—FA
S. suaveolens Tirel	E—FA
EPACRIDACEAE	
Dracophyllum	
D. ramosum Pancher ex Brongniart & Gris	E—MU
D. verticillatum Labillardière	E—MI
Styphelia	
S. balansae Virot	E—MU
S. dammarifolia (Brongniart & Gris) F. Mueller	E—MU
S. macrocarpa (Schlechter) Sleumer	E—MU
ERICACEAE	
Agapetes	
A. neocaledonica Guillaumin	E—FA
ESCALLONIACEAE	
Argophyllum	
A. brevipetalum Guillaumin	E—FU
A. ellipticum Schlechter	E—FA
A. laxum Schlechter	E—MU
A. nitidum J. R. & G. Forster	E—FA
A. vernicosum Daeniker	E—FU
EUPHORBIACEAE	
Antidesma	
A. messianianum Guillaumin	E—FA
Austrobuxus	
A. brevipes A. Shaw	E—MU
A. buxoides (Baillon) A. Shaw	E—MU
A. carunculatus (Baillon) A. Shaw	E—MU
A. cuneatus (A. Shaw) A. Shaw	E—MU
A. eugeniifolius (Guillaumin) A. Shaw	E—MU
A. huerlimannii A. Shaw	E—FU
A. lugubris A. Shaw	E—FU
A. montisdo A. Shaw	E—FU
A. ovalis A. Shaw	E—FU
A. pauciflorus A. Shaw	E—FU
A. rubiginosus (Guillaumin) A. Shaw	E—MU
A. vieillardii (Guillaumin) A. Shaw	E—FA
Baloghia	
B. alternifolia Baillon	E—MI
B. anisomera Guillaumin	E—FU
B. balansae (Baillon) Pax	E—FA
B. bureavii (Baillon) Schlechter	E—MU
B. lucida Endlicher	P—FA
B. montana (Mueller Argovie) Pax	E—FA
B. pininsularis Guillaumin	E—MI
B. pulchella Schlechter ex Pax	E—MU
Bocquillonia	
B. arborea A. Shaw	E—FA
B. brevipes Mueller Argovie	E—FA

B. codonostylis (Baillon) A. Shaw E—FA
B. grandidens Baillon E—FA
B. lucidula A. Shaw E—FI
B. nervosa A. Shaw E—FI
B. phenacostigma A. Shaw E—FA
B. rhomboidea (Schlechter) A. Shaw E—MU
B. schistophila A. Shaw E—FA
B. sessiliflora Baillon E—FU
B. spicata Baillon E—FU
Claoxylon
C. insulanum Mueller Argovie E—FA
Cleidion
C. claoxyloides Mueller Argovie E—FU
C. lasiophyllum Pax & Hoffmann E—FU
C. macarangoides Guillaumin E—FA
C. spathulatum Baillon E—FI
C. verticillatum Baillon E—MI
C. vieillardii Baillon E—MI
Cleistanthus
C. stipitatus Mueller Argovie E—FI
Coeconerion
C. balansae Baillon E—FU
C. minus Baillon E—MU
Codiaeum
C. inophyllum Mueller Argovie P—FI
Croton
C. cordatulus A. Shaw E—FU
Dendrophyllanthus
D. comptonii S. Moore E—FU
Drypetes
D. deplanchei (Brongniart & Gris) Merrill E—FA
Glochidion
G. billardieri Baillon E—FA
G. caledonicum Mueller Argovie E—FA
G. glaucum (Labillardière) Mueller Argovie E—FA
G. kanalense Baillon E—FA
G. macrophyllum Mueller Argovie E——
G. wagapense Briquet E—FI
Homalanthus
H. nutans (J. R. & G. Forster) Guillaumin P—FI
H. repandus Schleehter E—FI
H. schlechteri Pax & Hoffman E—FI
Macaranga
M. alchorneoides Pax & Liegelsheim E—FU
M. coriacea Mueller Argovie E—MI
M. fulvescens Schleehter E—FI
M. insularis Schleehter E—FA
M. oreophila Pax & Hoffmann E——
M. vedeliana Mueller Argovie E—FI
M. vieillardii Mueller Argovie E—MU
Mallotus
M. repandus Mueller Argovie P—FI
Neoguillauminia
N. cleopatra (Baillon) Croizat E—FU
Phyllanthus
P. amieuensis Guillaumin E—FA
P. baladensis Baillon E—FA
P. balansacanus Guillaumin E—FU
P. baumannii Guillaumin E—FU
P. bourgeoisii Baillon E—FA
P. bupleuroides Baillon E—MI
P. casearoides S. Moore E—FA
P. cataractarum Mueller Argovie E—FU
P. caudatus Mueller Argovie E—MU
P. chamaecerasus Baillon E—FA
P. chrysanthus Baillon E—MA
P. gneissicus S. Moore E—FA
P. hurlimannii Guillaumin E—MU
P. induratus S. Moore E—FU
P. jaubertii Vieillard ex Guillaumin E—FA
P. koghiensis Guillaumin E—FU
P. lifuensis Guillaumin E—FA
P. longeramosus Guillaumin E—FU
P. loranthoides Baillon E—MI
P. mareensis Guillaumin E—FA
P. maytenifolius S. Moore E—FI
P. ouveanus Daeniker E—FA
P. platycalyx Mueller Argovie E—MI
P. rhodocladus S. Moore E—FA
P. sarasinii Guillaumin E—FA
P. stenophyllus Guillaumin E—FA
P. sylvincola S. Moore E—FA
P. toninensis S. Moore E—FA
P. torrentium Mueller Argovie E—FU
P. trichopodus Guillaumin E—FA
P. umbraecolus Guillaumin E—FU
P. vespertilio (Mueller Argovie) Baillon E—MI
P. yahouensis Schleehter E—FA
FAGACEAE
Nothofagus
N. acquilateralis (Baumann-Bodenheim) Steenis E—FI
N. balansae (Baillon) Steenis E—FU
N. baumanniae (Baumann-Bodenheim) Steenis E—FU
N. codonandra (Baillon) Steenis E—FU
N. discoidea (Baumann-Bodenheim) Steenis E—FU
FLACOURTIACEAE
Casearia
C. coriifolia Lescot & Sleumer E—FU
C. lifuana Daeniker E—FA
C. puberula Guillaumin E—FU
C. silvana Schleehter P—MI
Homalium
H. decurrens (Vieillard) Briquet E—MI
H. francii Guillaumin E—FI
H. guillainii (Vieillard) Briquet E—MI
H. intermedium (Vieillard) Briquet E—FA
H. polystachyum (Vieillard) Briquet E—MI
H. rivulare (Vieillard) Briquet E—FA
H. sleumerianum Lescot E—FA
Lasioehlamys
L. cordifolia Sleumer E—FA
L. coriacea Sleumer E—FA
L. fasciculata (Guillaumin) Sleumer E—FA
L. hurlimannii (Guillaumin) Sleumer E—FU
L. koghiensis (Guillaumin) Sleumer E—MU
L. mandjeliana Sleumer E—FA
L. pseudocoriacea Sleumer E—FU
L. reticulata (Schleehter) Pax & Hoffmann E—FA

L. rivularis Sleumer	E — FU
L. trichostemona (Guillaumin) Sleumer	E — FU
Xylosma	
X. bernardianum Sleumer	E — FA
X. confusum Guillaumin	E — FU
X. dothioense Guillaumin	E — FU
X. gigantifolium Sleumer	E — FA
X. inaequinervium Sleumer	E — FU
X. lancifolium Sleumer	E — FA
X. lifuanum Guillaumin	E — FA
X. peltatum (Sleumer) Lescot	E — FU
X. tuberculatum Sleumer	E — FU
X. vincentii Guillaumin	E — FI
FLAGELLARIACEAE	
Flagellaria	
F. neocaledonica Schlechter	E — MU
FLINDERSIACEAE	
Flindersia	
F. fournieri Pancher & Sebert	E — FI
GESNERIACEAE	
Coronanthera	
C. barbata C. B. Clarke	E — FU
C. clarkeana Schlechter	E — FA
C. deltoidifolia Vieillard ex C. B. Clarke	E — FA
C. pancheri C. B. Clarke	E — FU
C. pedunculosa C. B. Clarke	E — MU
C. pinguior C. B. Clarke	E — FA
C. pulchra C. B. Clarke	E — FU
C. sericea C. B. Clarke	E — FU
C. squamata Virot	E — MU
Depanthus	
D. glaber (C. B. Clarke) S. Moore	E — FA
D. pubescens Guillaumin	E — FA
GOODENIACEAE	
Scaevola	
S. balansae Guillaumin	E — FU
S. indigofera Schlechter	E — FA
GRAMINEAE	
Centosteca	
C. lappacea (L.) Desvaux	P — MA
Leptaspis	
L. banksii R. Brown	P — FA
Oplismenus	
O. compositus (L.) Palissot de Beauvois	P — MI
O. hirtellus (L.) Palissot de Beauvois	P — MI
GUTTIFEREAE	
Calophyllum	
C. caledonicum Vieillard	E — FI
Garcinia	
G. amplexicaulis Vieillard	E — FI
G. balansae Pierre	E — MU
G. densiflora Pierre	E — FA
G. laurina Vieillard ex Guillaumin	E — FA
G. lenormandii Vieillard ex Guillaumin	E — FA
G. neglecta Vieillard	E — FI
G. pancheri Pierre	E — P–
G. pedicellata Seemann	E — FI
G. puat Guillaumin	E — FI
G. sessilis Seemann	P — —
G. vieillardii Pierre	E — FA
G. virgata Vieillard ex Guillaumin	E — FA
Montrouziera	
M. cauliflora Planchon & Triana	E — FI
M. gabriellae Baillon	E — FU
M. verticillata Planchon & Triana	E — MU
Ochrocarpus	
O. neurophylla (Schlechter) Steenis	E — FI
HERNANDIACEAE	
Hernandia	
H. cordigera Vieillard	E — FI
HIPPOCRATEACEAE	
Salacia	
S. bailloniana Loesener	E — FA
S. dognyensis Guillaumin	E — FA
S. neocaledonica Loesener	E — FU
S. pancheri Baillon	E — FI
S. poissoniana Loesener	E — FA
S. pronyensis Guillaumin	E — FU
ICACINACEAE	
Apodytes	
A. clusiaefolium (Baillon) Villiers	E — FI
Citronella	
C. macrocarpa Huerlimann	E — FA
C. sarmentosa (Baillon) Howard	E — FI
Gastrolepis	
G. austrocaledonica (Baillon) Howard	E — FU
LAURACEAE	
Adenodaphne	
A. macrophylla Kostermans	E — MU
A. spathulata Kostermans	E — MI
Beilschmiedia	
B. neocaledonica Kostermans	E — MI
B. oreophila Schlechter	E — MU
Cryptocarya	
C. aristata Kostermans	E — FA
C. chartacea Kostermans	E — FA
C. elliptica Schlechter	E — FA
C. gracilis Schlechter	E — FI
C. guillauminii Kostermans	E — FU
C. leptospermoides Kostermans	E — MI
C. lifuensis Guillaumin	E — FA
C. mackeei Kostermans	E — MU
C. macrocarpa Guillaumin	E — FI
C. macrodesme Schlechter	E — FA
C. odorata Guillaumin	E — MU
C. oubatchensis Schlechter	E — FA
C. phyllostemon Kostermans	E — FU
C. pluricostata Kostermans	E — MI
C. schmidii Kostermans	E — FA
C. transversa Kostermans	E — FU
C. velutinosa Kostermans	E — FA
Endiandra	
E. baillonii (Pancher & Sebert) Guillaumin	E — MU
E. lecardii Guillaumin	E — FA
E. neocaledonica Kostermans	E — FI
E. polyneura Schlechter	E — FA
E. poueboensis Guillaumin	E — FA
E. sebertii Guillaumin	E — FI
Litsea	
L. lecardii Guillaumin	E — MI
L. neocaledonica S. Moore	E — FI
LECYTHIDACEAE	
Barringtonia	
B. integrifolia (Montrouzier) Schlechter	E — FI
B. neocaledonica Vieillard	E — FA
LILIACEAE	
Arthropodium	
A. neocaledonicum J. G. Baker	E — FI
A. paniculatum R. Brown	P — FI
Astelia	
A. neocaledonica Schlecter	E e FI

Dianella	
D. ensifolia (L.) A. DC	P — —
D. javanica (Blume) Kunth	P — FI
D. pendula Schlittler	E — MI
LINACEAE	
Hugonia	
H. latifolia (Vieillard) Schlechter	E — MI
H. neocaledonica Vieillard	P — FA
H. oreogena Schlechter	E — FI
H. papillosa Guillaumin	E — FI
LOGANIACEAE	
Fagraea	
F. berteriana A. Gray	E — FI
Geniostoma	
G. balansaeanum Baillon	E — MU
G. celastrineum Baillon	E — MI
G. denisflorum Baillon	E — MU
G. erythrospermum Baillon	E — FA
G. glaucescens Schlechter	E — MA
G. mooreanum Conn	E — FA
G. novaecaledoniae Vieillard ex Baillon	E — FI
G. rupestre J. R. & G. Forster	E — MI
G. vestitum Baillon	E — FA
Neuburgia	
N. neocaledonica (Gilg & Benediet)	P — FI
LORANTHACEAE	
Amyema	
A. artensis (Montrouzier) Danser	P — FU
A. scandens (Tieghem) Danser	E — FU
Amylotheca	
A. dictyophleba (F. Mueller) Tieghem	P — FA
A. pyramidata (Tieghem) Danser	E — FU
Korthalsella	
K. amentacea (Tieghem) Danser	P — —
K. dichotoma (Tieghem) Engler	E — FI
K. striata Danser	E — FI
MELIACEAE	
Aglaia	
A. elaeagnoidea (Jussieu) Bentham	P — FI
Amoora	
A. balansaena A. DC.	E — FA
A. vieillardii C. DC.	E — FA
Dysoxylum	
D. albicans Vieillard ex C. DC.	E — MI
D. balansaeanum C. DC.	E — FU
D. comptonii E. G. Baker	E — FA
D. francii C. DC.	E — FA
D. gamosepalum E. G. Baker	E — FA
D. glomeratum Vieillard	E — FU
D. hurlimannii Guillaumin	E — FI
D. kouiriense Virot	E — FA
D. rufescens Vieillard	E — FI
D. vieillardii C. DC.	E — FU
MENISPERMACEAE	
Hypserpa	
H. neocaledonica Diels	P — FI
H. vieillardii Diels	E — MU
Pachygone	
P. loyaltiensis Diels	E — FI
P. tomentella Diels	E — MI
Stephania	
S. forsteri (A. DC.) A. Gray	P — FA
MIMOSACEAE	
Adenanthera	
A. pavonina L.	P — FA
Albizia	
A. callistemon (Montrouzier) Guillaumin & Beauvisage	E — FU
A. granulosa Bentham	E — FI
A. streptocarpa Fournier	E — FA
Serianthes	
S. melanesica Fosberg	P — FA
S. sachetae Fosberg	E — FU
MONIMIACEAE	
Hedycarya	
H. aragoensis Jérémie	E — FA
H. baudouini Baillon	E — FU
H. chrysophylla Perkins	E — FA
H. cupulata Baillon	E — FA
H. engleriana S. Moore	E — FA
H. parvifolia Perkins & Schlechter	E — FU
H. rivularis Guillaumin	E — FA
H. symplocoides S. Moore	E — FA
Kibaropsis	
K. caledonica (Guillaumin) Jérémie	E — FA
MORACEAE	
Ficus	
F. asperula Bureau	E — FI
F. austrocaledonica Bureau	E — FI
F. barraui Guillaumin	E — FA
F. cataractarum Vieillard ex Bureau	E — FA
F. dzumacensis Guillaumin	E — FU
F. heteroselis Bureau	E — FA
F. hurlimannii Guillaumin	E — FA
F. leiocarpa (Bureau) Warburg	E — FA
F. lifouensis Corner	E — FA
F. maialis Guillaumin	E — FU
F. mareensis Warburg	E — FA
F. microcarpa L.f.	P — MA
F. microtophora Corner	E — FA
F. mutabilis Bureau	E — MI
F. nitidifolia Bureau	E — FU
F. otophora Corner & Guillaumin	E — FA
F. otophoroides Corner	E — FA
F. pancheriana Bureau	E — FA
F. planchonellaefolia Guillaumin	E — FU
F. prolixa J. R. Forster	P — FA
F. pteroporum Guillaumin	E — FA
F. racemigera Bureau	E — FI
F. schleechteri Warburg	E — MI
F. versicolor Bureau	E — FA
F. vieillardiana Bureau	E — FA
F. virgata Reinwardt	P — MI
F. webbiana (Miquel) Miquel	E — FI
Pseudomorus	
P. brunoniana Bureau	E — FA
Sparattosyce	
S. balansae A. Richter ex Guillaumin	E — FA
S. dioica Bureau	E — FU
Streblus	
S. sclerophyllus Corner	E — FU
MYRICACEAE	
Canacomyrica	
C. monticola Guillaumin	E — FU
MYRSINACEAE	
Maesa	
M. novocaledonica Mez	E — FI
Rapanea	
R. asymmetrica Mez	E — MU
R. citrifolia Mez	E — MI
R. diminuta Mez	E — FU
R. grandifolia S. Moore	E — FU

R. lanceolata Mez	E—FI
R. lecardii Mez	E—FA
R. lifuensis Mez	E—FA
R. macrophylla Mez	E—FU
R. modesta Mez	P—MA
R. stenophylla Mez	E—FA
R. vieillardii Mez	E—FI
Tapeinosperma	
T. acutangulum Mez	E—FA
T. amosense Guillaumin	E—FA
T. amplexicaule Mez	E—FA
T. aragoense Guillaumin	E—FA
T. campanula Mez	E—FA
T. clethroides Mez	E—FA
T. colnettianum Guillaumin	E—FA
T. deflexum Mez	E—FU
T. ellipticum Mez	E—FA
T. glandulosum Guillaumin	E——
T. gracile Mez	E—FI
T. grandiflorum Guillaumin	E——
T. koghiense Guillaumin	E—FU
T. laeve Mez	E—FA
T. laurifolium Mez	E——
T. lecardii Mez	E—FA
T. lenormandii J. D. Hooker	E—FU
T. minutum Mez	E—FI
T. multipunctatum Guillaumin	E—FA
T. nectandroides Mez	E—FA
T. nitidum Mez	E—MI
T. oblongifolium Mez	E—FA
T. pancheri Mez	E—FU
T. pauciflorum Mez	E—FA
T. pennelii Guillaumin	E—FA
T. psaladense Mez	E—FA
T. pulchellum Mez	E——
T. robustum Mez	E—FU
T. rubidum Mez	E—FA
T. rubriscapum Guillaumin	E—FA
T. schlechteri Mez	E—FI
T. squarrosum Mez	E—FA
T. tenue Mez	E—FA
T. vestitum Mez	E—FU
T. vieillardii J. D. Hooker	E—FI
T. wagapense Mez	E—FA
T. whitei Guillaumin	E—FU
MYRTACEAE	
Archirhodomyrtus	
A. baladensis (Brongniart & Gris) Burret	E—MU
A. paitensis (Schlechter) Burret	E—MI
A. vieillardii (Brongniart & Gris) Burret	E—FU
Arillastrum	
A. gummiferum Pancher ex Baillon	E—FU
Austromyrtus	
A. ploumensis (Daeniker) Burret	E—FU
A. vieillardii (Brongniart & Gris) Burret	E—FA
Carpolepis	
C. elegans (Montrouzier) Dawson ined.	E—MI
C. laurifolia (Brongniart & Gris) Dawson ined.	E—FU
C. tardiflora Dawson ined.	E—FI
Caryophyllus	
C. amieuensis Guillaumin	E—FA
C. arboreus (E. G. Baker) Guillaumin	E—FA
C. baladensis Brongniart & Gris	E—FA
C. balansae Guillaumin	E—FI
C. deplanchei Guillaumin	E—FI
C. elegans Brongniart & Gris	E—FA
C. ellipticus Labillardière	E—MU
C. garciniifolius Guillaumin	E—FA
C. propinquus Guillaumin	E—FA
C. pterocarpus Vieillard	E——
C. undulatus Guillaumin	E—MI
C. xanthostemifolius Guillaumin	E—MU
Cleistocalyx	
C. brongniartii (Brong. Gris) Merrill & Perry	E—FU
C. pennelii (Guillaumin) Merrill	E—FU
Cupheanthus	
C. comptonii (E. G. Baker) Guillaumin	E—FA
C. neocaledonicus Seemann	E—FA
C. paniensis (E. G. Baker) Guillaumin	E—FA
C. serpentini A. Shaw	E—FU
C. toninensis (E. G. Baker) Guillaumin	E—FA
Eugenia	
E. bullata Pancher	E—FI
E. colnettiana Guillaumin	E—FA
E. crucigera Daeniker	E—FU
E. daaouiensis Guillaumin	E—FA
E. heckelii Pancher & Sebert	E—MU
E. ignambiensis E. G. Baker	E—FA
E. myrtopsidioides Guillaumin	E—FU
E. pronyensis Guillaumin	E—FU
E. pterocarpa Baillon	E——
E. sarasinii Guillaumin	E—FA
Jambosa	
J. acris Pancher	E—FU
J. canalensis Vieillard	E—FI
J. longifolia Brongniart & Gris	E—FA
J. nervosa Vieillard	E—FI
Mearnsia	
M. brevistylis Dawson ined.	E—FI
Metrosideros	
M. dolichandra Schlechter ex Guillaumin	E—FU
M. nitida Brongniart & Gris	E—FI
M. operculata Labillardière	E—MI
M. oreomyrtus Daeniker	E—FI
M. paniensis Dawson ined.	E—FA
M. petiolata Dawson ined.	E—MA
M. porphyrea Schlechter ex Guillaumin	E—FI
Piliocalyx	
P. baudouini Brongniart & Gris	E—MI
P. bullatus Brongniart & Gris	E—FA
P. francii Guillaumin	E—FI
P. micranthus Brongniart & Gris	E—FA
P. robustus Brongniart & Gris	E—FA
P. wagapensis Brongniart & Gris	E—FA
Pleurocalyptus	
P. austrocaledonicus (Guillaumin) Dawson ined.	E—FU
P. pancheri (Brongniart & Gris) Dawson ined.	E—FU
Syzygium	
S. auriculatum Brongniart & Gris	E—MI
S. austrocaledonicum (Seemann) Guillaumin	E—MI
S. conceptionis Guillaumin	E—FA

S. densiflorum Brongniart & Gris	E—FI
S. frutescens Brongniart & Gris	E—FA
S. koghiense Guillaumin	E—FI
S. lateriflorum Brongniart & Gris	E—FA
S. lifuanum Daeniker	E—FA
S. macranthum Brongniart & Gris	E—FU
S. micans Brongniart & Gris	E—FA
S. microsemmifolium Guillaumin	E——
S. mouanum Guillaumin	E—FU
S. neglectum Brongniart & Gris	E—FA
S. pseudopinnatum Daeniker	E—FA
S. quadrangulare Guillaumin	E—FU
S. rivulare Vieillard	E—FA
S. schlechterianum Hochreutiner	E——
S. tenuiflorum Brongniart & Gris	E—MI
S. tripetalum Guillaumin	E—FI
S. verrucosum Daeniker	E—FA
S. wagapense Brongniart & Gris	E—FI
Tristaniopsis	
T. polyandra (Guillaumin) Dawson ined.	E—MU
Xanthostemon	
X. flavum (Brongniart & Gris) Schlechter	E—MU
X. grisei Guillaumin	E—FA
X. sebertii Guillaumin	E—FU
X. vieillardii (Brongniart & Gris) Niedenzu	E—FA
NEPENTHACEAE	
Nepenthes	
N. vieillardii J. D. Hooker	P—MU
NYCTAGINACEAE	
Calpidia	
C. gigantocarpa Heimerl	E—FI
C. pancheriana Heimerl	E—FA
Pisonia	
P. aculeata L.	P—FA
OLEACEAE	
Jasminum	
J. didymum J. R. & G. Forster	P—FI
J. elatum Pancher ex Guillaumin	E—FI
J. neocaledonicum Schlechter	E—FI
Linociera	
L. brachystachys (Schlechter) P. S. Green	E—FI
Olea	
O. paniculata R. Brown	P—FI
Osmanthus	
O. austrocaledonicus (Vieillard) Knoblauch	E—MU
ONCOTHECACEAE	
Oncotheca	
O. balansae Baillon	E—FU
O. macrocarpa McPherson Morat & Veillon	E—FU
ORCHIDACEAE	
Acanthephippium	
A. vitiense L. O. Williams	P—FI
Acianthus	
A. atepalus H. Reichenbach	E—FU
A. bracteatus Rendle	E—FU
A. confusus Guillaumin	E—FU
A. corniculatus Rendle	E—FA
A. cymbalariifolius F. Mueller & Kraenzlin	E—FI
A. elegans H. Reichenbach	E—FU
A. grandiflorus Schlechter	E—MU
A. heptadactylus Kraenzlin	E—FI
A. oxyglossus Schlechter	E—FU
A. tenuilabris Schlechter	E—MU
A. veillonis Hallé	E—FU
Agrostophyllum	
A. sp.	P e FA
Anoectochilus	
A. imitans Schlechter	E—FI
Appendicula	
A. reflexa Blume	P e FI
Bulbophyllum	
B. aphanopetalum Schlechter	E e FI
B. atrorubens Schlechter	E e FI
B. baladeanum J. J. Smith	E e FI
B. betchei F. Mueller	P e FI
B. comptonii Rendle	E e FI
B. gracillimum (Rolfe) Rolfe	E e FI
B. hexarhopalos Schlechter	E e FI
B. keekee Hallé	E e FI
B. lingulatum Rendle	E e FI
B. longiflorum DuPetit Thouars	P e FI
B. lophoglottis (Guillamin) Hallé	E e FI
B. neocaledonicum Schlechter	E e FI
B. ngoyense Schlechter	E e FI
B. pachyanthum Schlechter	P e FI
B. pallidiflorum Schlechter	E e FI
B. polypodioides Schlechter	P e FI
Calanthe	
C. balansae Finet	E—FI
C. langei F. Mueller	E—FI
C. neocaledonica Rendle	E—FI
C. oreadum Rendle	E—FI
C. triplicata (Willemet) Ames	P—FI
Ceratostylis	
C. micrantha Schlechter	P e FI
Chamaeanthus	
C. aymardii Hallé	E e FI
C. begaudii Hallé	E e FI
C. neocaledonicus (Rendle) Hallé	E e FI
Cheirostylis	
C. montana Blume	P—MI
Chrysoglossum	
C. neocaledonicum Schlechter	E—FA
Cleisostoma	
C. montanum (J. J. Smith) Garay	P e FI
Clematepistephium	
C. smilacifolium (H. Reichenbach) Hallé	E—FI
Coelogyne	
C. lycastoides F. Mueller & Kraenzlin	P e FA
Coilochilus	
C. neocaledonicus Schlechter	E—MU
Corybas	
C. neocaledonicus (Schlechter) Schlechter	E—FI
Cryptostylis	
C. arachnites (Blume) Hasskarl	P—FI
Dendrobium	
D. arthrobulbum Kraenzlin	E e FI
D. austrocaledonicum Schlechter	P e FI
D. camaridiorum H. Reichenbach	E e FI
D. camptocentrum Schlechter	P e FI
D. cleistogamum Schlechter	E e FI
D. crassicaule Schlechter	E e FI
D. crassifolium Schlechter	E e FI

D. deplanchei H. Reichenbach	E—MU
D. finetianum Schlechter	E e FI
D. fractiflexum Finet	E—FU
D. gracilicaule F. Mueller	P e FI
D. linguiforme Swartz	P e FI
D. macrophyllum A. Richard	P e FI
D. munificum (Finet) Hallé	E e FI
D. muricatum Finet	E e FI
D. ngoyense Schlechter	E e FU
D. oppositifolium (Kraenzlin) Hallé	E e FU
D. pectinatum Finet	E e FI
D. poissonianum Schlechter	E e FI
D. sylvanum H. Reichenbach	E e FI
D. virotii Guillaumin	E e FU
Didymoplexis	
D. minor J. J. Smith	P—FA
Diplocaulobium	
D. ou-hinnae (Schlechter) Kraenzlin	P e F
Earina	
E. deplanchei H. Reichenbach	E—MU
E. valida H. Reichenbach	P e FI
Epipogium	
E. roseum (D. Don) Lindley	P—FU
Eria	
E. aeridostachya H. Reichenbach ex Lindley	P e FU
E. karicouyensis Schlechter	E e FU
E. vieillardii H. Reichenbach	P e FI
Erythrodes	
E. oxyglossa Schlechter	P—FU
Eulophia	
E. moratii Hallé	E—FA
E. pulchra (DuPetit Thouars) Lindley	P—FA
Glomera	
G. macdonaldii (Schlechter) J. J. Smith	P e FI
Gonatostylis	
G. bougainvillei Hallé	E—FU
G. vieillardii (H. Reichenbach) Schlechter	E—MI
Goodyera	
G. rubicunda (Blume) Lindley	P—FA
G. scripta (H. Reichenbach) Schlechter	E—FA
G. subregularis (H. Reichenbach) Schlechter	E—FA
G. viridiflora (Blume) Blume	P—FA
Habenaria	
H. insularis Schlechter	E—FA
Hetaeria	
H. discoidea (H. Reichenbach) Schlechter	P—FA
Liparis	
L. caespitosa Lindley	P e FI
L. chalendei Finet	E—MU
L. condylobulbon H. Reichenbach	P e FI
L. elliptica Wight	P e FI
L. gibbosa Finet	P e FI
L. laxa Schlechter	E—MI
L. layardii F. Mueller	P—FA
L. phalocrocorax Hallé	E—MI
L. sula Hallé	E—FU
L. zosterops Hallé	E—FI
Malaxis	
M. taurina (H. Richenbach) Kuntze	E—MI
Megastylis	
M. glandulosa (Schlechter) Schlechter	E—FI
M. latissima (Schlechter) Schlechter	E—FU
M. montana (Schlechter) Schlechter	E—FU
Microtatorchis	
M. oreophila Schlechter	E e FI
M. schlechteri Garay	E e FI
Moerenhoutia	
M. grandiflora (Schlechter) Schlechter	E—FI
Nervilia	
N. aragoana Gaudichaud	P—FA
N. platychila Schlechter	P—FA
Oberonia	
O. ensiformis (J. E. Smith) Lindley	P e MI
O. equitans (G. Forster) Mutel	P e FI
O. fissiglossa Hallé	E e FI
O. neocaledonica Schlechter	E e FI
Octarrhena	
O. oberonioides (Schlechter) Schlechter	E e FI
O. saccolabioides (Schlechter) Schlechter	E e FI
Pachyplectron	
P. arifolium Schlechter	E—FI
P. neocaledonicum Schlechter	E—MU
Peristylus	
P. minimiflorus (Kraenzlin) Hallé	E—FA
P. ngoyensis (Schlechter) Hallé	E—FI
Phajus	
P. daenikeri Kraenzlin	E—FU
P. neocaledonicus Rendle	E—FA
P. robertsii F. Mueller	E—FI
Pholidota	
P. pallida Lindley	P e FI
Phreatia	
P. hypsorhynchos Schlechter	E e FI
P. neocaledonica Schlechter	E e FI
P. oubatchensis Schlechter	E e FI
P. pachyphylla Schlechter	P e FI
P. paleata H. Reichenbach	E e FI
P. sublata Hallé	E e FI
Pristiglottis	
P. montana (Schlechter) Cretziou & J. J. Smith	P—FI
Pterostylis	
P. bureaviana Schlechter	E—FU
P. curta R. Brown	P—FA
Rhynchophreatia	
R. micrantha (A. Richard) Hallé	P e FI
Sarcochilus	
S. hillii (F. Mueller) F. Mueller	P e FI
S. koghiensis Schlechter	E e FI
Schoenorchis	
S. micrantha Reinwardt ex Blume	P e FI
Spathoglottis	
S. petri H. Reichenbach	P—FA
Spiranthes	
S. sinensis (Persoon) Ames	P—MI
Taeniophyllum	
T. graptolitum Hallé	E e FI
T. trachypus Schlechter	E e FI
Thrixspermum	
T. sp.	P e FI
Trachoma	
T. subluteum (Rupp) Garay	P e FI

Tropidia	
T. viridifusca Kraenzlin	E—FA
Zeuxine	
Z. francii Schlechter	E—FA
Z. vieillardii (H. Reichenbach) Schlechter	E—FA
PALMAE	
Actinokentia	
A. divaricata Dammer	E—FU
A. huerlimannii H. E. Moore	E—FU
Allosehmidia	
A. glabrata (Beccari) H. E. Moore	E—FA
Basselinia	
B. deplanchei Vieillard	E—FA
B. eriostachys Beccari	E—FI
B. gracilis Vieillard	E—FI
B. pancheri Vieillard	E—FU
B. surculosa Beccari	E—FU
B. tomentosa Beccari	E—FA
B. velutina Beccari	E—FI
Brongniartikentia	
B. lanuginosa H. E. Moore	E—FA
B. vaginata (Brongniart) Beccari	E—FU
Burretiokentia	
B. hapala H. E. Moore	E—FA
B. vieillardii H. E. Moore	E—FI
Campercarpus	
C. fulcitus Wendland	E—FU
Chambeyronia	
C. lepidota H. E. Moore	E—FI
C. macrocarpa Vieillard	E—FI
Clinosperma	
C. bractealis Beccari	E—FU
Cyphokentia	
C. macrostachya Brongniart	E—FI
Cyphophoenix	
C. elegans Wendland	E—FA
C. nucele H. E. Moore	E—FA
Cyphosperma	
C. balansae Wendland ex Bentham & J. D. Hooker	E—FA
Kentiopsis	
K. olivaeformis Brongniart	E—FA
Lavoixia	
L. macrocarpa H. E. Moore	E—FA
Mackeea	
M. magnifica H. E. Moore	E—FA
Moratia	
M. cerifera H. E. Moore	E—FA
Pritchardiopsis	
P. jeanneneyi Beccari	E—FU
Veillonia	
V. alba H. E. Moore	E—FA
PANDANACEAE	
Freycinetia	
F. brevifolia Martelli	E—FA
F. comptonii Rendle	E—FA
F. coriacea Warburg	E—FA
F. cylindracea Solms	E—FI
F. erythrostigma Solms ex Martelli	E—FU
F. graminifolia Solms	E—FI
F. hydra B. C. Stone	E—FI
F. longispica Martelli	P—FA
F. lorifolia Martelli	E—FU
F. microdonta Martelli	P—FA
F. monticola Rendle	P—FA
F. novocaledonica Warburg	E—FA
F. schlechteri Warburg	P—FI
F. spectabilis Solms	E—FI
F. sulcata Warburg	P—FI
F. verrucosa Warburg	E—FA
F. vieillardii Martelli	E—FA
Pandanus	
P. altissimus Solms	E—FI
P. aragoensis Solms	E—FA
P. balansae Solms	E—FU
P. bernardii St. John	E—FI
P. clandestinus B. C. Stone	E—FA
P. lacuum St. John	E—FU
P. mackeei St. John	E—FU
P. macrocarpus (Brongniart) Solms	E—FA
P. neocaledonicus Martelli	E—FA
P. oblongus Brongniart & Solms	E—FI
P. pancheri (Brongniart) Solms	E—FU
P. spaerocephalus (Brongniart) Solms	E—FI
P. verecundus B. C. Stone	E—FU
P. vieillardii Martelli	E—FA
PAPILIONACEAE	
Arthroclianthus	
A. andersonii (Seemann) Schindler	E——
A. angustifolius Hochreutiner	E—FA
A. balansae Schindler	E—MI
A. caudatus Schindler	E——
A. comptonii E. G. Baker	E—FA
A. cuneatus Schindler	E—FU
A. grandifolius E. G. Baker	E—FA
A. ischnopodus Guillaumin	E—FA
A. leratii Schindler	E——
A. macrobotryosus Hochreutiner	E—FA
A. macrophyllus Schindler	E——
A. maximus Schindler	E——
A. microbotrys Hochreutiner	E—FA
A. ovalifolius Schindler	E——
A. tenuifolius Schindler	E——
A. vieillardii Schindler	E——
Mucuna	
M. gigantea (Willdenow) A. DC.	P——
M. neocaledonica E. G. Baker	E—FA
M. urens Medic.	P—FA
PARACRYPHIACEAE	
Paracryphia	
P. alticola (Schlechter) Steenis	E—FI
PASSIFLORACEAE	
Passiflora	
P. aurantia J. R. Forster	P—MI
PHELLINACEAE	
Phellinc	
P. balansae Baillon	E——
P. billardieri Pancher ex Loesener	E—FU
P. brachyphylla Baillon	E—FA
P. comosa Labillardière	E—FI
P. confertifolia Baillon	E—FA
P. dumbeensis Guillaumin	E—FU
P. erubescens Baillon	E—MI
P. floribunda Baillon	E——
P. indivisa (Baillon) Harms & Loesener	E——
P. lucida Vieillard ex Baillon	E—FU
P. macrophylla Baillon	E—FI
P. microcarpa Baillon	E—FU
P. robusta Baillon	E—FU
P. wagapensis Baillon	E—FA
PHILESIACEAE	
Eustrephus	
E. latifolius R. Brown ex Sims	P—FI

Geitonoplesium	
G. cymosum (Cunningham) R. Brown	P—FI
PIPERACEAE	
Peperomia	
P. baueriana Miquel	P—FA
P. caledonica C. DC.	E—FI
P. endlicheri Miquel	P—FA
P. insularum Miquel	P——
P. kanalensis C. DC.	E——
P. leptostachya W. J. Hooker & Arnott	P—FI
P. lifuana C. DC.	E—FA
P. reflexa A. Dietrich	P—FU
P. sarasinii C. DC.	E—FU
P. subpallescens C. DC.	E——
Piper	
P. austrocaledonicum C. DC.	P—FI
P. comptonii S. Moore	E—FA
P. paitense Schlechter	E—FU
P. staminodiferum C. DC.	E—FA
PITTOSPORACEAE	
Pittosporum	
P. cheesmanniae Guillaumin	E—FA
P. coccineum (Montrouzier) Beauvisage	E—FU
P. dognyense Guillaumin	E—FA
P. dzumacense Guillaumin	E—MU
P. echinatum Brongniart & Gris	E—MI
P. heckeli Dubard	E—FA
P. leratii Guillaumin	E—FU
P. lifuense Guillaumin	E—FA
P. morierei Guillaumin	E—FA
P. mouanum Guillaumin	E—FU
P. obovatum Guillaumin	E—FA
P. oreophilum Guillaumin	E—FA
P. oubatchense Schlechter	E—FA
P. paitense Guillaumin	E—FU
P. pancheri Brongniart & Gris	E—MA
P. paniculatum Brongniart & Gris	E—FA
P. paniense Guillaumin	E—FA
P. poueboense Guillaumin	E—FA
P. pronyense Guillaumin	E—MU
P. rhytidocarpum A. Gray	P—MA
P. sylvaticum Guillaumin	E—FA
P. thyense Guillaumin	E—FA
P. vieillardi Brongniart & Gris	E—FA
PODOCARPACEAE	
Acmopyle	
A. pancheri (Brongniart & Gris) Pilger	E—FI
Dacrycarpus	
D. vieillardii (Parlatore) deLaubenfels	E—MU
Dacrydium	
D. balansae Brongniart & Gris	E—MU
D. lycopodioides Brongniart & Gris	E—FU
Decussocarpus	
D. comptonii (Buchholz) deLaubenfels	E—FI
Falcatifolium	
F. taxoides (Brongniart & Gris) deLaubenfels	E—FI
Parasitaxus	
P. ustus (Vieillard) deLaubenfels	E—FI
Podocarpus	
P. decumbens N. Gray	E—MU
P. longefoliolatus Pilger	E—FU
P. lucienii deLaubenfels	E—FI
P. polyspermus deLaubenfels	E—FI
P. sylvestris Buchholz	E—FI
Prumnopitys	
P. ferruginoides (Compton) deLaubenfels	E—FI
PROTEACEAE	
Beauprea	
B. asplenioides Schlechter	E—FU
B. comptonii S. Moore	E—FA
B. crassifolia Virot	E—MA
B. filipes Schlechter	E—FI
B. gracilis Brongniart & Gris	E—MU
B. montana (Brongniart & Gris) Virot	E—MU
B. montisfontium Guillaumin	E—MU
B. neglecta Virot	E—MU
B. pancheri Brongniart & Gris	E—MU
B. spathulaefolia Brongniart & Gris	E—MU
Kermadecia	
K. elliptica Brongniart & Gris	E—FA
K. pronyensis (Guillaumin) Guillaumin	E—FU
K. rotundifolia Brongniart & Gris	E—FA
K. sinuata Brongniart & Gris	E—FA
Knightia	
K. deplanchei Vieillard ex Brongniart & Gris	E—MU
K. strobilina (Labillardière) R. Brown	E—FI
Macadamia	
M. francii (Guillaumin) Sleumer	E—FI
M. neurophylla (Guillaumin) Virot	E—FU
M. rousselii (Vieillard) Sleumer	E—FA
M. vieillardii (Brongniart & Gris) Sleumer	E—FA
Sleumerodendron	
S. austrocaledonicum (Brongniart & Gris) Virot	E—FI
Stenocarpus	
S. intermedius Brongniart & Gris	E—MU
S. rubiginosus Brongniart & Gris	E—FI
S. trinervis (Montrouzier) Guillaumin	E—MI
S. umbelliferus (Forster) Druce	E—MI
Virotia	
V. leptophylla (Guillaumin) L. Johnson & Briggs	E—FI
RHAMNACEAE	
Alphitonia	
A. neocaledonica Guillaumin	E—MI
A. xerocarpa Baillon	E—FU
Ventilago	
V. buxoides Baillon	E—FI
RHIZOPHORACEAE	
Crossostylis	
C. biflora J. R. & G. Forster	P—FI
C. grandiflora Pancher ex Brongniart & Gris	E—FA
C. multiflora Brongniart & Gris	E—FA
C. seberti Brongniart & Gris	E—FU
RUBIACEAE	
Atractocarpus	
A. aragoensis Guillaumin	E—FA

A. bracteatus Schlechter & Krause	E——
A. cucumicarpus S. Moore	E—MU
A. heterophyllus Guillaumin & Beauvisage	E—FI
A. longistipitatus Guillaumin	E—FA
A. oblongus S. Moore	E—MU
A. platyxylon (Vieillard ex Pancher & Seb.) Guillaumin	E—FA
A. sessilifolius Guillaumin	E—FA
A. simulans Guillaumin	E—FU
Coclospermum	
C. balansaeanum Baillon	E—FA
C. monticolum Baillon ex Guillaumin	E—FA
C. nigrescens (Krause) Guillaumin	E—FA
Cyclophyllum	
C. baladense Guillaumin	E—FA
C. calyculatum Guillaumin	E—FA
C. cymosum S. Moore	E—FA
C. henriettae (Baillon) Guillaumin	E—FA
C. sagittatum (Baillon) Guillaumin	E—MU
C. vieillardi (Baillon) Guillaumin	E—FA
Gardenia	
G. mollis Schlechter	E—FA
Guettarda	
G. balansaeana Baillon	E—FU
G. eximia Baillon	E—FU
G. heterosepala Guillaumin	E—FU
G. hypolasia Baillon	E—FU
G. rhamnoides Baillon	E—FI
G. splendens Baillon	E—FU
G. vieillardii Guillaumin	E—FA
Ixora	
I. cauliflora Montrouzier	E—FA
I. collina (Montrouzier) Beauvisage	P—FI
I. comptonii S. Moore	F—FA
I. kuakuensis S. Moore	E—FU
I. lecardii Guillaumin	E—FA
I. longiloba Guillaumin	E—FU
I. montana Schlechter	E—FI
I. oligantha Schlechter & Krause	E—FI
I. vieillardii Guillaumin	E—FA
I. yahouensis Schlechter	E—FA
Morierina	
M. montana Vieillard	E—FU
M. propinqua Brongniart & Gris	E—MU
Morinda	
M. artensis Montrouzier	E—MU
M. billardieri Baillon	E—FI
M. choriophylla Baillon	E—FI
M. decipiens Schlechter	E—FA
M. elongata Schlechter	E—FU
M. fallax Schlechter	E—FA
M. forsteri Scemann	P—FA
M. kanalensis Baillon	E—FU
M. ligustrina S. Moore	E—FA
M. phylliraeoides Labillardière	E—FA
M. velutina Guillaumin	E—FI
M. vieillardi Guillaumin	E—FA
Mussaenda	
M. cylindrocarpa Burck	P—FA
Psychotria	
P. amieuensis Guillaumin	E—FA
P. arbutifolia (Baillon) Schlechter	E—FI
P. baillonii Schlechter	E—FA
P. baladensis (Baillon) Guillaumin	E—FA
P. bourailensis Guillaumin	E——
P. brachylaena (Baillon) Guillaumin	E—FA
P. calliantha (Baillon) Guillaumin	E—FI
P. calothyrsus (Baillon) Guillaumin	E—FI
P. canalensis (Baillon) Guillaumin	E—FA
P. collina Labillardière	P—FI
P. colnettiana Guillaumin	E—FA
P. damnatorum Guillaumin	E—FA
P. deplanchei (Beauvisage) Guillaumin	E—FU
P. douarrei (Beauvisage) Daeniker	E—FU
P. faguetii (Baillon) Schlechter	E—FI
P. frondosa S. Moore	E—FA
P. fuscopilosa Schlechter	E—FU
P. gabriellae (Baillon) Guillaumin	E—MU
P. gneissica S. Moore	E—FA
P. goniocarpa (Baillon) Guillaumin	E—FI
P. laxissima S. Moore	E—FA
P. lenormandi Schlechter	E—FU
P. lepidocalyx S. Moore	E—FA
P. leratii Guillaumin	E—FI
P. ligustrina (Baillon) Guillaumin	E—FA
P. lyciiflora (Baillon) Schlechter	E—FU
P. lycioides (Baillon) Guillaumin	E—FU
P. macroglossa (Baillon) Guillaumin	E—FI
P. microglossa (Baillon) Guillaumin	E—FI
P. monanthos (Baillon) Schlechter	E—FU
P. nathaliae (Baillon) Guillaumin	E—MU
P. nekouana (Baillon) Guillaumin	E——
P. nummularioides Guillaumin	E—FA
P. oleoides (Baillon) Schlechter	E—MU
P. oreophila Guillaumin	E—FA
P. oubatchensis Schlechter	E—FA
P. pancheri (Baillon) Schlechter	E—FA
P. papillosa Guillaumin	E—FA
P. paramaracarpa (Baillon) Schlechter	E—MU
P. patula S. Moore	E—FA
P. phyllanthoides Schlechter ex Guillaumin	E—MU
P. poissoniana (Baillon) Guillaumin	E—FI
P. pseudomicrodaphne (Baillon) Guillaumin	E—MU
P. pubituba S. Moore	E—FA
P. pulchrebracteata Guillaumin	E—FA
P. rarifolia S. Moore	E—FA
P. roseotincta S. Moore	E—FA
P. rosmarinifolia (Baillon) Schlechter	E—FA
P. rubefacta (S. Moore) Guillaumin	E—MU
P. rupicola (Baillon) Schlechter	E—MI

P. sagittalis (Baillon) Guillaumin E—FA
P. saltiensis (S. Moore) Guillaumin E—FU
P. schlechteriana Krause E—FA
P. schumanniana Schlechter E—FA
P. semperflorens (Baillon) Pancher ex Beauvisage E—FI
P. speciosa (Beauvisage) S. Moore E—MU
P. stenophylla Guillaumin E——
P. stricta (Baillon) Guillaumin E—FA
P. suaveolens S. Moore E—FA
P. subpallens S. Moore E—MU
P. subuniflora (Baillon) Schlechter E—FU
P. toninensis S. Moore E—FA
P. trichopodantha (Baillon) Guillaumin E—FA
P. trisulcata (Baillon) Guillaumin E—FA
P. unioensis Guillaumin E—FI
P. vieillardii (Baillon) Baillon E—FA
P. wagapensis Guillaumin E—FA

Randia
R. artensis (Montrouzier) Guillaumin E—FA
R. sezitat Guillaumin E—FA
R. vieillardii Baillon E—FA

Rhopalobrachium
R. congestum Schlechter & Krause E—FA
R. fragrans Schlechter & Krause E—FA

Tarenna
T. ignambiensis (Guillaumin) Jérémie E—FA
T. lifouana (Daeniker) Jérémie E—FA
T. truncatocalyx (Guillaumin) Bremekamp E—MI
T. unioensis (Guillaumin) Jérémie E—FA

RUTACEAE

Dutaillyea
D. comptonii E. G. Baker E—FA
D. oreophylla Guillaumin E—FI
D. sessilifoliola Guillaumin E—MI
D. trifoliolata Baillon E—FA

Geijera
G. balansae (Baillon) Schinz & Guillaumin E—FI

Melieope
M. diversifolia Guillaumin E—FA
M. glaberrima Guillaumin E—FI
M. lasioneura Baillon E—FU
M. leptophylla Guillaumin E——
M. leratii Guillaumin E—FU
M. montana E. G. Baker E—FA
M. platystemon E. G. Baker E—FA
M. triphylla Merrill E—FI

Mieromelum
M. minutum (J. R. & G. Forster) Wight & Arnott P—FA

Sareomelicope
S. argyrophylla Guillaumin E—FI
S. sarcococca Engler E—FI

Zanthoxylum
Z. neocaledonicum E. G. Baker E—FU
Z. pinnatum (J. R. & G. Forster) Oliver P—MI
Z. sarasinii Guillaumin E—MA
Z. schlechteri Guillaumin E—FI

Zieridium
Z. melicopaefolium Guillaumin E—FI
Z. pseudobtusifolium Guillaumin E—FI

SANTALACEAE

Amphorogyne
A. celastroides Stauffer & Huerlimann E—FI
A. spicata Stauffer & Huerlimann E—FI

Daenikera
D. corallina Huerlimann & Stauffer E—FU

Exocarpos
E. phyllanthoides Endlicher P—MU
E. pseudocasuarina Guillaumin E—MU

Santalum
S. austrocaledonicum Vieillard E—MI

SAPINDACEAE

Alectryon
A. cariuatum Radlkofer E—FA

Arytera
A. arcuata Radlkofer E—MA
A. gracilipes Radlkofer E—MU
A. lepidota Radlkofer E—MU

Cupaniopsis
C. apiocarpa Radlkofer E – MI
C. azantha Radlkofer E—FA
C. chytradenia Radlkofer E—MU
C. dictyophora Radlkofer E—FA
C. ganophloea Radlkofer E—FA
C. godefroyi Guillaumin E——
C. guioides Guillaumin E——
C. hypodermatica Radlkofer E——
C. macrocarpa Radlkofer E—MI
C. mareensis Guillaumin E—FA
C. mouana Guillaumin E—FU
C. oedipoda Radlkofer E—FI
C. pennelii Guillaumin E—FA
C. petiolutata Radlkofer E—FA
C. psilocarpa Radlkofer E—FA
C. subcuneata Radlkofer E—MI
C. sylvatica Guillaumin E—FU
C. trigonocarpa Radlkofer E—MA

Elattostachys
E. apetala (Labillardière) Radlkofer E—FI
E. falcata (A. Gray) Radlkofer P——
E. incisa Radlkofer E—MA

Gongrodiscus
G. sp. E—FA
G. subferrugineus Radlkofer E—FI

Guioa
G. crenata Radlkofer E—MI
G. crenulata Radlkofer E—MI
G. fusca Radlkofer E—MU
G. glauca (Labillardière) Radlkofer E—MI
G. gracilis (Pancher & Sebert) Radlkofer E—MI
G. microsepala Radlkofer E—FI
G. pectinata Radlkofer E—MI
G. villosa Radlkofer E—MI

Harpullia
H. austrocaledonica Baillon E—FA

Podonephelium
P. balansae Guillaumin E—FA
P. concolor Radlkofer E—MU
P. homei (Seemann) Radlkofer E—FI

Storthocalyx
S. chryseus Radlkofer E—FI

S. leioneurus Radlkofer	E—FU
S. sordidus Radlkofer	E—MU
SAPOTACEAE	
Beccariella	
B. balanseana (Pierre) Aubréville	E—MI
B. rubicunda (Pierre ex Baillon) Pierre	E—FA
Bureavella	
B. endlicheri (Montrouzier) Aubréville	E—FI
B. wakere (Pancher & Sebert) Aubréville	E—FI
Leptostylis	
L. grandifolia Vink	E—FU
Manilkara	
M. dissecta (L.) Dubard	E—FI
Mimusops	
M. elengi L.	P—FA
Niemeyera	
N. balansae (Baillon) Aubréville	E—FI
Ochrothallus	
O. gordoniaefolius (S. Moore) Aubréville	E—MI
O. multipetalus (Vink) Aubréville	E—FU
O. sarlinii Aubréville	E—FI
O. schmidii Aubréville	E—FU
O. sessilifolius (Pancher & Sebert) Pierre ex Guillaumin	E—FU
O. wagapensis (Guillaumin) Aubréville	E—FA
Pichonia	
P. balansana Pierre	E—FA
Planchonella	
P. amieuana (Guillaumin) Aubréville	E—FA
P. kuebiniensis Aubréville	E—FU
P. laetevirens (Baillon) Pierre ex Dubard	E—FU
P. lifuana (Baillon) Pierre ex Dubard	E—FA
P. linggensis (Burck) Pierre	P—FA
P. microphylla Pierre ex Dubard	E—MI
P. pronyensis Guillaumin	E—FU
P. saligna S. Moore	E—FA
P. skottsbergii Guillaumin	E—FU
P. thiensis Aubréville	E—FU
Pycnandra	
P. benthamii Baillon	E—FA
P. comptonii (S. Moore) Vink	E—FA
P. controversa (Guillaumin) Vink	E—FA
P. fastuosa (Baillon) Vink	E—FI
P. griseosepala Vink	E—FU
P. neocaledonica (S. Moore) Vink	E—FA
P. paniensis Aubréville	E—FA
P. vieillardii (Baillon) Vink	E—FA
Pyriluma	
P. sphaerocarpum (Baillon) Aubréville	E—FA
Sebertia	
S. acuminata Pierre ex Baillon	E—FU
SAXIFRAGACEAE	
Polyosma	
P. brachystachys Schlechter	E—FA
P. comptonii E. G. Baker	E—MU
P. discolor Baillon	E—FA
P. keratii Guillaumin	E—FA
P. pancheri Baillon	E—FU
P. podophylla Schlechter	E—FA
P. spicata Baillon	E—FA
Quintinia	
Q. major (Baillon) Schlechter	E—FI
Q. media (Baillon) Guillaumin	E—MU
Q. minor (Baillon) Schlechter	E—MU
Q. oreophila (Schlechter) Schlechter	E—FU
Q. parviflora (Schlechter) Schlechter	E—FA
SIMAROUBACEAE	
Soulamea	
S. fraxinifolia Brongniart & Gris	E—FI
S. muelleri Brongniart & Gris	E—MU
SMILACACEAE	
Smilax	
S. orbiculata Labillardière	E——
S. phrifurcata A. DC.	E—MI
SOLANACEAE	
Duboisia	
D. myoporoides R. Brown	P—MI
SPHENOSTEMONACEAE	
Sphenostemon	
S. balansae Baillon	E—MU
S. comptonii E. G. Baker	E—MI
S. oppositifolius Huerlimann	E—FU
S. pachycladum Baillon	E—FI
STERCULIACEAE	
Sterculia	
S. austrocaledonica J. D. Hooker	E—FI
S. bullata Pancher & Sebert	P—MA
S. comptonii E. G. Baker	E—FI
S. dzumacensis Guillaumin	E—FU
S. fatsioides (Schlechter) Guillaumin	E—FA
S. francii Guillaumin	E—MU
S. megaphylla Bureau & Poisson ex Guillaumin	E—FA
S. platanoides Schlechter	E—MU
S. sageniifolia (Schlechter) Guillaumin	E—FA
S. schefflerafolia Guillaumin	E—FI
S. schumanniana (Schlechter) Guillaumin	E—FA
STRASBURGERIACEAE	
Strasburgeria	
S. robusta (Vieillard ex Pancher & Sebert) Guillaumin	E—FU
SYMPLOCACEAE	
Symplocos	
S. arborea (Vieillard) Brongniart & Gris	E—FA
S. baptica Brongniart & Gris	E—FI
S. caerulescens Brongniart & Gris	E—FA
S. flavescens Brand	E—FI
S. gracilis Brongniart & Gris	E—FA
S. montana Brongniart & Gris	E—MI
S. munda S. Moore	E—MI
S. pseudonitida Guillaumin	E—FA
S. tortuosa Vieillard	E—FI
TAXACEAE	
Austrotaxus	
A. spicata Compton	E—FA
THYMELEACEAE	
Lethedon	
L. balansae (Baillon) Kostermans	E—MI

L. calleana (Guillaumin) Kostermans	E—FU
L. cernua (Baillon) Kostermans	E—FU
L. ciliaris (Baillon) Kostermans	E—FU
L. comptonii (E. G. Baker) Kostermans	E—FA
L. cordatorctusa Aymonin	E—MI
L. oblonga (Schlechter) Kostermans	E—MU
L. ovata (Guillaumin) Kostermans	E—MU
L. salicifolia (Labillardière) Aymonin	E—MI
Microsemma	
M. calophylla Guillaumin & MacKee	E—FU
M. rhizophoracfolia Guillaumin	E—FA
Wickstroemia	
W. indica (L.) Mey	P—MI
W. novaecaledonica Gandoger	E——
TILIACEAE	
Trichospermum	
T. sp.	P—FA
TRIMENIACEAE	
Trimenia	
T. neocaledonica E. G. Baker	E—FA
TRIURIDACEAE	
Sciaphila	
S. dolichostyla Schlechter	E—FA
S. neocaledonica Schlechter	E—FU
ULMACEAE	
Celtis	
C. balansae Planchon	E—FA
C. paniculata (Endlicher) Planchon	P—FA
URTICACEAE	
Dendrocnide	
D. latifolia (Gandoger) Chew	P—FA
D. viticnsis (Seemann) Chew	P—FA
Procris	
P. pedunculata (J. R. Forster) Weddell	P—FI
VERBENACEAE	
Gmelina	
G. lignum-vitreum Guillaumin	E—FA
Oxera	
O. arborea Schlechter	E—FA
O. baladica Vieillard	E—FA
O. candelabrum Beauvisage	E—FI
O. comptonii S. Moore	E—FA
O. cordifolia Dubard	E——
O. coriacea Dubard	E——
O. crassiflora S. Moore	E—FA
O. crassifolia Virot	E—MU
O. floribunda Schlechter	E—FA
O. longifolia Vicillard	E——
O. mcrytacfolia Guillaumin	E—FA
O. microcalyx Guillaumin	E—FA
O. morierii Vieillard	E—FA
O. nuda Virot	E—MI
O. oblongifolia Vieillard	E——
O. oreophila Guillaumin	E—FU
O. ovata Vieillard	E——
O. palmatinervia Dubard	E—FU
O. pancheri Dubard	E——
O. robusta Vicillard	E—FI
O. rugosa Guillaumin	E—FU
O. suaveolens Guillaumin	E—MU
O. subverticillata Vicillard	E——
O. sulfurea Dubard	E—FA
Vitex	
V. neocaledonica Gandoger	E——
V. rapini Beauvisage	E—FU
VIOLACEAE	
Agatea	
A. lenormandi Melchior	E——
A. schlechteri Melchior	E—FI
Hybanthus	
H. austrocaledonicus Schinz & Guillaumin	E—FU
H. caledonicus (Turcz) Cretz	P—MI
H. ilicifolius (Vieillard) Schinz & Guillaumin	E—FI
H. micranthus Guillaumin	E—FA
WINTERACEAE	
Belliolum	
B. crassifolium (Baillon) Tieghem	E—FA
B. rivulare Tieghem	E—FA
B. vieillardi Tieghem	E—FA
Bubbia	
B. auriculata Tieghem	E—FA
B. balansae (Baillon) Tieghem	E—FU
B. comptonii (Baker f.) Dandy	E—FA
B. deplanchei Tieghem	E—FA
B. heteroneura Tieghem	E—FA
B. isoneura Tieghem	E—FA
B. odorata (Baker f.) Dandy	E—FA
B. pauciflora (Baker f.) Dandy	E—FA
Exospermum	
E. stipitatum (Baillon) Tieghem	E—FA
Zygogynum	
Z. acsmithii Vink	E—FU
Z. baillonii Tieghem	E—FU
Z. bicolor Tieghem	E—FA
Z. mackeei Vink	E—FA
Z. pomiferum Baillon	E—FU
Z. vieillardii Baillon	E—FU

APPENDIX 2

Rainforest genera and their phytogeographic distribution

Symbols used

- * (Before the name of a genus) taxon of infrageneric rank
- 1 (columns 1–15) present in the areas cited
- 2 (columns 1–15, 17) species concentration in the areas cited
- 3 (column 1) Madagascar
- 4 (column 1) Mascarenes
- 5 (column 1) Seychelles
- A–L (column 16) distribution type:
  - A — Pantropical
  - B — New Caledonian (subendemic)
  - C — Palaeotropical
  - D — Indo–Australian
  - E — Endemic
  - F — Indo–Malayan
  - G — Malesian–Papuan
  - H — Australian
  - I — Australian–Papuan
  - J — Subantarctic Pacific
  - K — Subantarctic
  - L — Pacific

		Africa	Asia	Malesia	New Guinea	Australia	Solomons	New Hebrides	Lord Howe Is.	Norfolk Is.	New Zealand	Fiji	North Pacific	Polynesia	Samoa–Tonga	America	Distrib. type	New Caledonia
ACAN.	*Graptophyllum*	1			1	1	1	1				1			1		I	
ACAN.	*Hemigraphis*		1	1	1	1	1	1					1		1		F	
ACAN.	*Justicia*	1	1	1	1	1	1									1	A	
ACAN.	*Pseuderanthemum*	1	1	1	1	1	1	1	1			1	1			1	A	
AGAV.	*Cordyline*	3	1	1	1	1				1	1				1	1	K	
ALAN.	*Alangium*	1	1	1	1	1	1	1				1					C	
ALSE.	*Periomphale*				1												B	2
AMAR.	*Campynema*					1											L	
AMAR.	*Campynemanthe*																E	
AMBO.	*Amborella*																E	
AMPE.	*Cayratia*	1	1	1	1	1	1		1			1	1				C	
AMPE.	*Cissus*	1	1	1	1	1	1		1				1			1	A	
ANAC.	*Euroschinus*				1	1											I	2
ANAC.	*Semecarpus*		1	1	1	1	1	1				1	1		1		G	
ANON.	*Desmos*			1	1	1						1					D	
ANON.	*Polyalthia*	4	1	2	1	1	1	1				1	1		1		C	
ANON.	*Richella*			1								1					G	
ANON.	*Uvaria*	1	1	1	1		1	1									C	
ANON.	*Xylopia*	1	1	1	1		1					1				1	A	
APOC.	*Alstonia*	1		1	1	1	1	1				1		1	1		C	
APOC.	*Alyxia*	1	1	1	1	1	1	1	1	1		1	1	1	1		C	
APOC.	*Artia*		1	1													B	2
APOC.	*Cerbera*	4	1	1	1	1	1	1				1	1	1	1		D	
APOC.	*Cerberiopsis*																E	
APOC.	*Melodinus*		1	1	1	1	1	1		1		1			1		D	
APOC.	*Neisosperma*	5	1	1	1	1	1	1					1		1		D	2
APOC.	*Oehrosia*	3	1	1	1	1	1	1	1			1	1	1	1		D	
APOC.	*Pagiantha*		1	1			1					1					F	
APOC.	*Parsonsia*		1	1	1	1	1	1	1		1	1					D	
APOC.	*Rauvolfia*	1	1	1	1	1	1						1			1	A	
AQUI.	*Ilex*	1	1	1	1	1		1	1				1	1		1	A	
ARAC.	*Epipremnum (Rhaphidophora)*		1	2	1	1	1	1				1	1	1	1		D	
ARAL.	*Apiopetalum*																E	
ARAL.	*Arthrophyllum*		1	1													F	2
ARAL.	*Botryomeryta*																E	
ARAL.	*Delarbrea*			1	1	1	1	1									B	2
ARAL.	*Dizygotheca*							1									B	2
ARAL.	*Meryta*				1	1	1	1		1	1		1	1	1		B	2
ARAL.	*Myodocarpus*																E	

		Africa	Asia	Malesia	New Guinea	Australia	Solomons	New Hebrides	Lord Howe Is.	Norfolk Is.	New Zealand	Fiji	North Pacific	Polynesia	Samoa–Tonga	America	Distrib. type	New Caledonia
ARAL.	*Polyscias (Tieghemopanax)*	1	1	1	1	1	1	1	1			1	1		1		C	
ARAL.	*Schefflera*	1	1	1	1	1	1	1			1	1	1		1	1	A	
ARAL.	*Strobilopanax*																E	
ARAU.	*Agathis*			1	1	1		1			1	1					I	2
ARAU.	*Araucaria*				1	1				1						1	J	2
ASCL.	*Hoya*		1	1	1	1	1	1				1	1		1		D	
ASCL.	*Marsdenia*	1	1	1	1	1			1				1			1	A	
ASCL.	*Secamone*	1	1	1	1	1		1									C	
ASCL.	*Tylophora*	1	1	1	1	1	1	1	1	1		1	1		1		C	
ATHE.	*Nemuaron*																E	
BALA.	*Balanophora*	1	1	1	1	1		1				1	1	1			C	
BALA.	*Hachettea*																E	
BALO.	*Balanops*					1		1				1					B	2
BIGN.	*Deplanchea*			1	1	1											I	
BIGN.	*Pandorea*			1	1	1	1		1								I	
BISC.	*Bischofia*		1	1	1	1	1	1				1		1	1		D	
* BURS.	*Canarium* (Sect. *Canariellum*)					1											H	2
CASU.	*Gymnostoma (Casuarina)*			1	1	1	1	1				1					G	2
CELA.	*Cassine (Elaeodendron)*	1	1	1		1		1	1	1		1				1	A	
CELA.	*Maytenus*	1	1	1	1	1						1	1	1	1	1	A	
CELA.	*Menepetalum*																E	
CELA.	*Salaciopsis*																E	
CESA.	*Caesalpinia*	1	1	1	1	1	1	1	1	1		1	1	1	1	1	A	
CESA.	*Intsia*	1	1	1	1	1	1	1				1	1		1		C	
CESA.	*Mezoneurum*	1	1	1	1	1	1						1				C	
CESA.	*Storckiella*					1						1					L	
CHLO.	*Ascarina*	4		1	1		1	1			1	1		1	1		L	
CHRY.	*Hunga*				1												B	2
COMM.	*Aneilema*	1	1	1	1	1	1					1		1	1	1	A	
CONN.	*Rourea (Santaloides)*		1	1	1	1	1	1				1			1		D	
CORY.	*Corynocarpus*				1	1		1			1						I	
CUCU.	*Diplocyclos*	1	1	1	1	1	1	1		1							C	
CUNO.	*Acsmithia*			1	1	1						1					I	2
CUNO.	*Codia*																E	
CUNO.	*Cunonia*	1															K	2
CUNO.	*Geissois*					1	1	1				1					H	2
CUNO.	*Pancheria*																E	
CUNO.	*Weinmannia*	1		1	1		1	1			1	1		1	1	2	K	
CUPR.	*Libocedrus*				1						1					1	J	
CYPE.	*Baumea*	4	1	1	1	1								1			C	
CYPE.	*Carex*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	
CYPE.	*Costularia*	1		1	1	1											C	
CYPE.	*Scleria*	1	1	1	1	1	1	1				1	1		1	1	A	
CYPE.	*Uncinia*			1	1	1			1		1		1			1	K	
DILL.	*Hibbertia*	1		1	1	1						1					H	
DILL.	*Tetracera*	1	1	1	1	1										1	A	
DIOS.	*Dioscorea*	1	1	1	1	1		1				1	1	1	1		C	
EBEN.	*Diospyros*	1	1	1	1	1	1	1				1	1		1	1	A	
ELAE.	*Dubouzetia*			1	1												G	
ELAE.	*Elaeocarpus*	1	1	1	1	1	1	1	1		1	1	1	1	1		C	
* ELAE.	*Sloanea* (s.g. *Antholoma*)				1												G	
EPAC.	*Dracophyllum*					1			1		2						L	
EPAC.	*Styphelia*		1	1	1	2	1	1	1		1	1	1	1			H	
ERIC.	*Agapetes*		2	1	1	1	1					1					D	
ESCA.	*Argophyllum*					1											H	2
EUPH.	*Antidesma*	1	1	2	1	1	1	1				1	1		1		C	
EUPH.	*Austrobuxus*			1	1	1						1					H	2
EUPH.	*Baloghia*					1				1							B	2
EUPH.	*Bocquillonia*																E	
EUPH.	*Claoxylon*	1	1	1	1	1	1	1				1	1	1	1		C	
EUPH.	*Cleidion*	1	1	1	1	1	1	1				1				1	A	
EUPH.	*Cleistanthus*	1	1	2	1	1	1					1	1				C	
EUPH.	*Cocconerion*																E	
EUPH.	*Codiaeum*			1	1	1	1	1				1					I	
EUPH.	*Croton*	1	1	1	1	1	1	1				1	1		1	1	A	

		Africa	Asia	Malesia	New Guinea	Australia	Solomons	New Hebrides	Lord Howe Is.	Norfolk Is.	New Zealand	Fiji	North Pacific	Polynesia	Samoa–Tonga	America	Distrib. type	New Caledonia
EUPH.	*Dendrophyllanthus*																E	
EUPH.	*Drypetes*	2	1	1	1	1	1	1	1			1	1			1	A	
EUPH.	*Glochidion*	1	1	2	1	1	1	1				1	1	1	1	1	A	
EUPH.	*Homalanthus*		1	1	1	1	1	1	1	1	1	1	1	1	1		D	
EUPH.	*Macaranga*	1	1	1	1	1	1	1				1	1	1	1		C	
EUPH.	*Mallotus*	1	1	1	1	1	1	1				1	1		1		C	
EUPH.	*Neoguillauminia*																E	
EUPH.	*Phyllanthus*	1	1	1	1	1	1	1				1	1	1	1	1	A	
FAGA.	*Nothofagus*				1	1					1					1	J	
FLAC.	*Casearia*	2	1	1	1	1	1					1	1			1	A	
FLAC.	*Homalium*	1	1	1	1	1	1	1				1		1	1	1	A	
FLAC.	*Lasiochlamys*																E	
FLAC.	*Xylosma*	1	1	1	1	1	1	1				1	1	1	1	1	A	
FLAG.	*Flagellaria*	1	1	1	1	1	1		1			1	1		1		C	
FLIN.	*Flindersia*			1	1	1											I	
GESN.	*Coronanthera*					1	1										B	2
GESN.	*Depanthus*																E	
* GOOD.	*Scaevola* (Sect. *Scaevola*)			1	1		1					1	1	1			L	
GRAM.	*Centosteca*	1	1	1	1	1	1	1				1	1	1	1		C	
GRAM.	*Leptaspis*	1	1	1	1	1	1					1					C	
GRAM.	*Oplismenus*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	
GUTT.	*Calophyllum*	1	1	1	1	1	1	1	1	1		1	1	1	1	1	A	
GUTT.	*Garcinia*	1	1	2	1	1	1	1				1	1		1		C	
GUTT.	*Montrouziera*																E	
GUTT.	*Ochrocarpus*	1	1	1	1	1	1	1				1	1		1	1	A	
HERN.	*Hernandia*	1	1	1	1	1	1	1				1	1	1	1	1	A	
HIPP.	*Salacia*	1	1	1	1	1	1	1				1	1			1	A	
ICAC.	*Apodytes*	1	1	1		1											K	
ICAC.	*Citronella*			1	1	1	1	1				1			1	1	A	
ICAC.	*Gastrolepis*																E	
LAUR.	*Adenodaphne*																E	
LAUR.	*Beilschmiedia*	1	1	2	1	1	1				1					1	A	
LAUR.	*Cryptocarya*	1	1	1	1	1	1	1	1			1	1		1	1	A	
LAUR.	*Endiandra*		1	1	2	2	1	1				1			1		D	
LAUR.	*Litsea*		1	2	1	1	1	1			1	1			1	1	A	
LECY.	*Barringtonia*	1	1	1	2	1	1	1				1	1	1	1		C	
LILI.	*Arthropodium*	3			1	1					1						H	
LILI.	*Astelia*	4			1						1		1	1		1	L	
LILI.	*Dianella*	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	K	2
LINA.	*Hugonia*	1		1	1	1	1	1				1					I	2
LOGA.	*Fagraea*		1	2	1	1	1	1				1	1	1	1		D	
LOGA.	*Geniostoma*	3	1	1	1	1	1	1	1		1	1	1	1	1		C	2
LOGA.	*Neuburgia*			1	1		1	1				1	1				G	
LORA.	*Amyema*			1	1	1	1	1					1		1		I	
LORA.	*Amylotheca*				1	1									1		I	
LORA.	*Korthalsella*	1	1	1	1	1			1	1	1	1	1	1	1		C	
MELI.	*Aglaia*		1	2	1	1	1	1				1	1		1		D	
MELI.	*Anthocarapa (Amoora)*				1	1											I	
MELI.	*Dysoxylum*		1	2	1	1	1	1	1	1	1	1	1		1		D	
MENI.	*Hypserpa*		1	1	1	1	1	1					1				D	
MENI.	*Pachygone*		1	1	1	1						1	1				D	
MENI.	*Stephania*	1		1	1	1	1	1						1	1		C	
MIMO.	*Adenanthera*		1	1	1	1	1	1				1	1	1	1		C	
MIMO.	*Albizia*	1	1	1	1	1	1	1					1			1	A	
MIMO.	*Serianthes*			1	1		1	1				1	1	1	1		L	
MONI.	*Hedycarya*					1		1			1	1			1		B	2
MONI.	*Kibaropsis*																E	
MORA.	*Ficus*	1	1	1	1	1	1	1	1			1	1	1	1	1	A	
MORA.	*Sparattosyce*																E	
MORA.	*Streblus*	1	1	1	1	1	1	1			1	1		1	1		C	
MYRA.	*Canacomyrica*																E	
MYRS.	*Maesa*	1	1	1	1	1	1	1				1	1		1		C	
MYRS.	*Rapanea*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	
MYRS.	*Tapeinosperma*			1	1	1	1	1				1					L	
MYRT.	*Arillastrum*																E	